

Manual



Count!Guard

Let's make things safer!

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Preface

This document

This manual is intended for administrators and operators of Count!Guard and is applicable for version 2.1.0.0 or higher in combination with WebCCTV 4.2.0.0 or higher.



WebCCTV can be replaced by GuardNVR or IQR in this manual.

Safety Notices

Please observe all safety notes and instructions carefully when using this product.

Liability

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Legal considerations

Please check your local regional laws and regulations before using Count!Guard and WebCCTV for surveillance purposes. Camera surveillance maybe prohibited by laws, which may vary from country to country.

Trademark Acknowledgments

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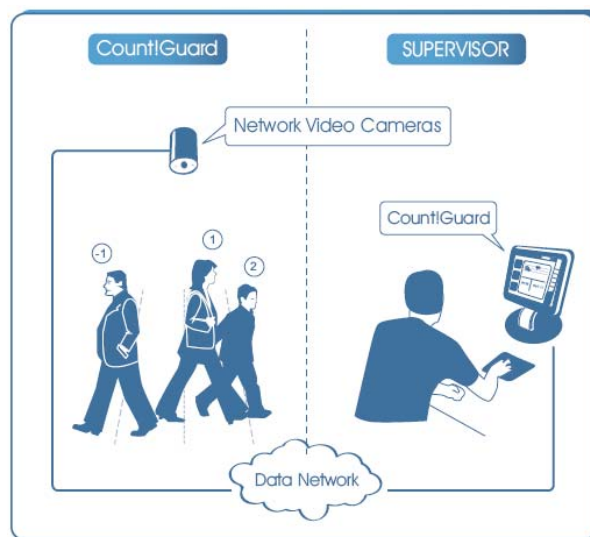
Support Services

Should you require any technical assistance, please contact your installer. If your questions cannot be answered immediately, your installer will forward your queries through the appropriate channels to ensure a fast response.

1 Introduction

1.1 Overview

Count!Guard is a video solution which uses network cameras to detect and count people crossing a narrow region in two directions: entering and leaving. Count!Guard creates a database recording the number of people coming in or out for each time period. Based on the stored data, reports can be created.

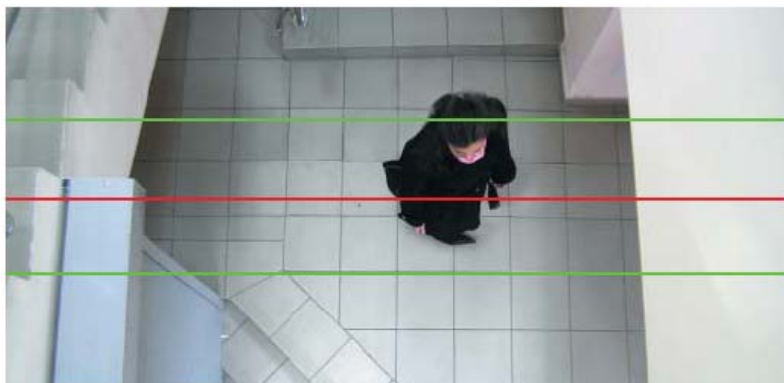


Count!Guard Scheme Screen

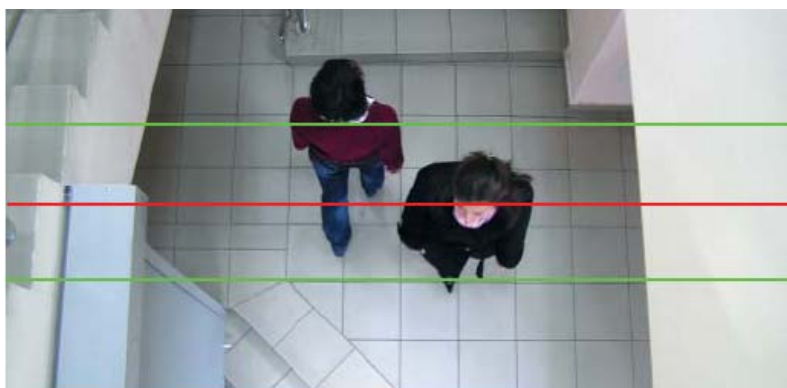
Count!Guard is an add-on product to WebCCTV which is a unique digital video surveillance solution. WebCCTV combines three major functions in one Network Video Recorder (NVR): local digital recording, multiplexing and simultaneous transmission of the video via existing networks (TCP/IP). Count!Guard can be used in combination with all standard security features present in WebCCTV.

Count!Guard is capable of handling a wide range of situations:

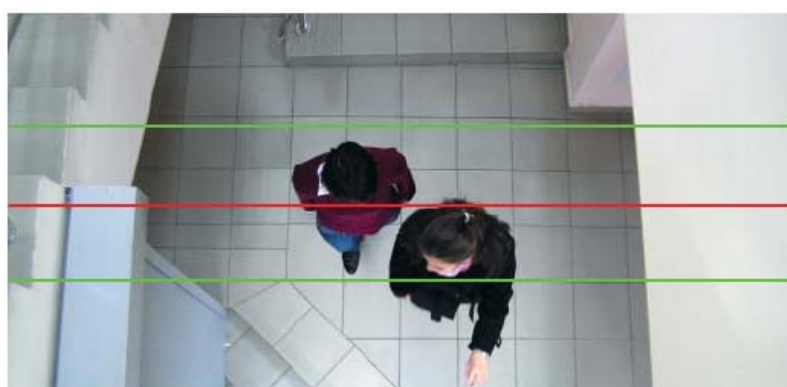
- U-turn



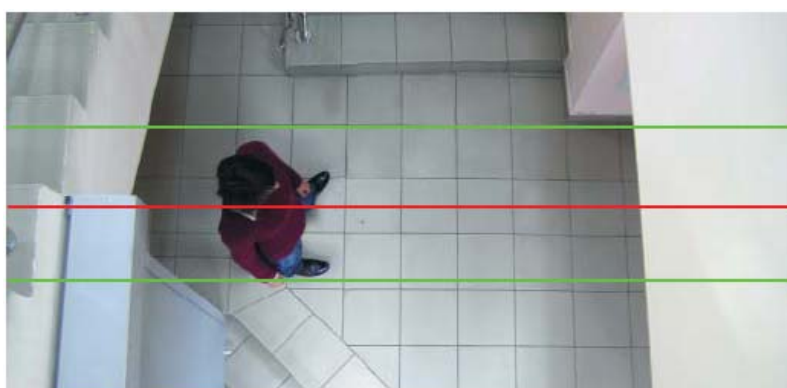
- Persons passing by each other



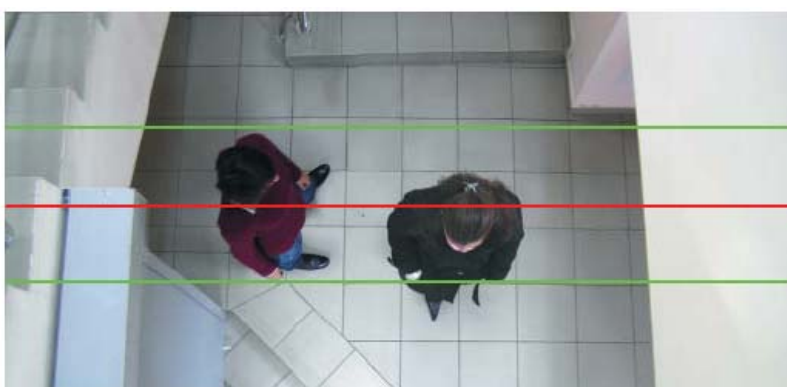
- Multiple persons passing together



- Person(s) lingering in the counting zone



- Person(s) lingering + passing persons



1.2 Equipment checklist

The following items are located on the Count!Guard installation CD:

- Count!Guard software suite installation
- Adobe Acrobat Reader installation
- Microsoft Visual C++ 8.0 Run-time library
- .Net 2.0 (SP1) Framework installation
- Java Version 6 Update 11 Framework installation
- Microsoft ASP .NET 2.0 AJAX Extensions 1.0
- Video Client Component installation
- Count!Guard manual in PDF format
- Count!Guard quick start guide in PDF format

1.3 Minimum system requirements

The following system components are the minimum requirements for proper Count!Guard operation:

Hardware

- Intel Pentium 4
- 512 MB RAM
- 16 MB RAM on the video card

Operating System

- Microsoft Windows XP Pro Service Pack 2
- Microsoft Vista

Software

- WebCCTV server version 4.2.0.0
- DirectX 9.0c
- .Net 2.0 Framework
- Java Version 6 Update 11 Framework
- Microsoft Visual C++ 8.0 Run-time library
- Microsoft ASP .NET AJAX Extension 1.0
- Video Client Component 4.2.0.0 or higher



Count!Guard has to be installed on the WebCCTV server.



To open exported files, you need a program that is able to open .xls files (e.g Microsoft Office Excel, Open Office...)

Camera & Positioning

- The camera is positioned higher than 2.50 meters (8.2 feet).
- The camera is mounted vertically (horizontal and vertical deviation angle = 0°). This means it is looking straight down.
- The camera delivers +/-25 fps to the WebCCTV server.

- The image resolution has to be at least QVGA (320x240).
- Lighting conditions: daylight or similar lighting.
- The camera streams in JPEG



The working of Count!Guard cannot be supported if all conditions are not completely fulfilled. Not meeting these requirements may lead to inaccurate counts and abnormal behavior of the Count!Guard application.

2 Installation

This chapter provides information how to install the Count!Guard software. As previously stated, Count!Guard is an add-on product to WebCCTV and can be used in combination with all standard security features present in WebCCTV.



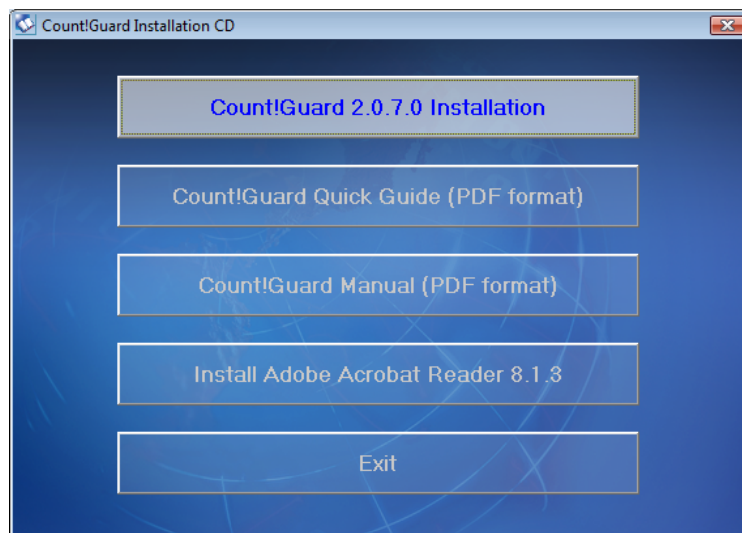
Before installing, carefully the Count!Guard requirements and make sure all the required preinstalled software is present. If a required software or component is missing, you can install it from the installation CD during the Count!Guard installation.



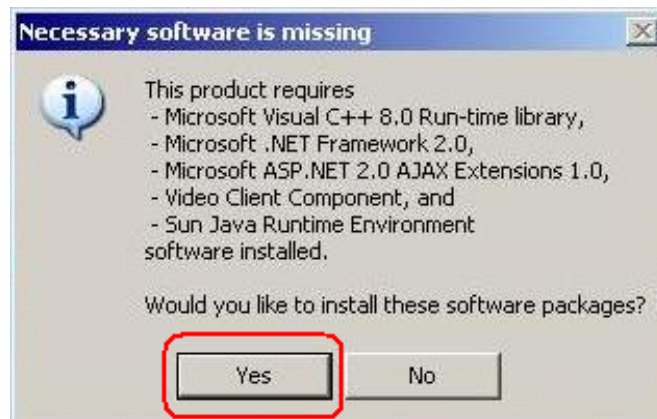
By default, some of the settings are already selected. It is advisable to keep these default settings to ensure the best performance.

To install Count!Guard, follow the steps below:

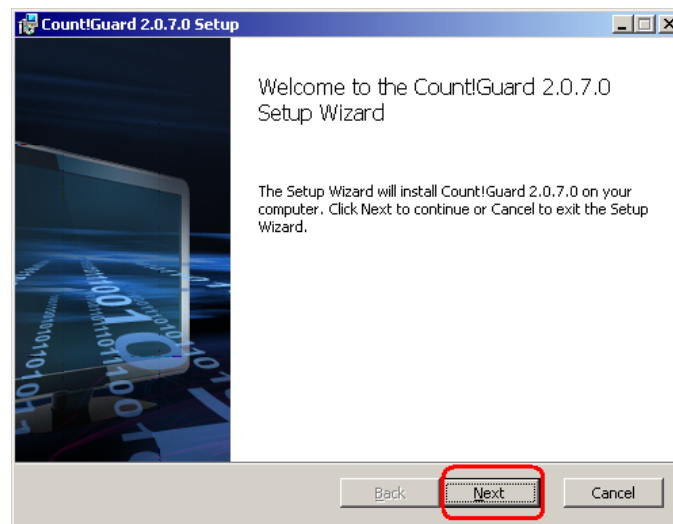
1. Insert the Count!Guard installation CD into your CD/DVD-drive.
2. You will get the following screen. If Autorun is disabled, go to **My Computer** and double-click on the drive icon that corresponds to your CD/DVD-drive. Click the **Count!Guard installation** button.



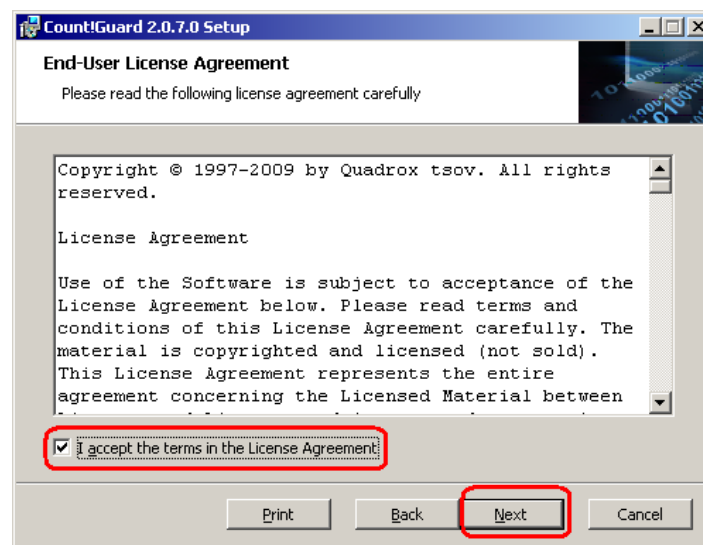
3. If not all required software is installed, you will get the next screen (or a comparable one). Click **Yes**. If all required software is installed, this step will be skipped.



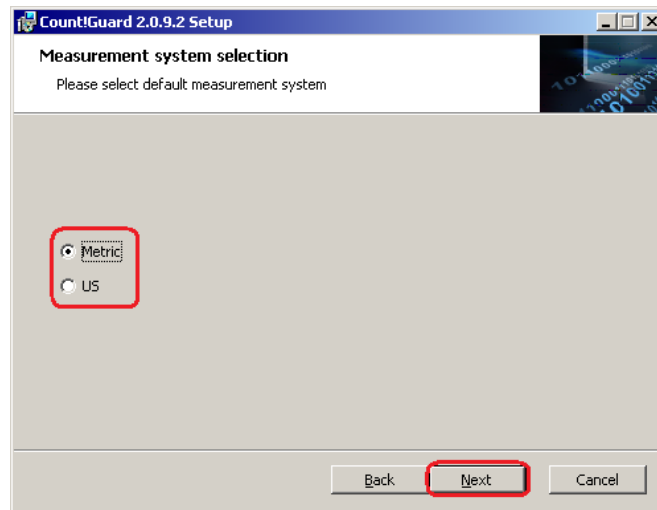
4. The first installation screen appears. Click **Next**.



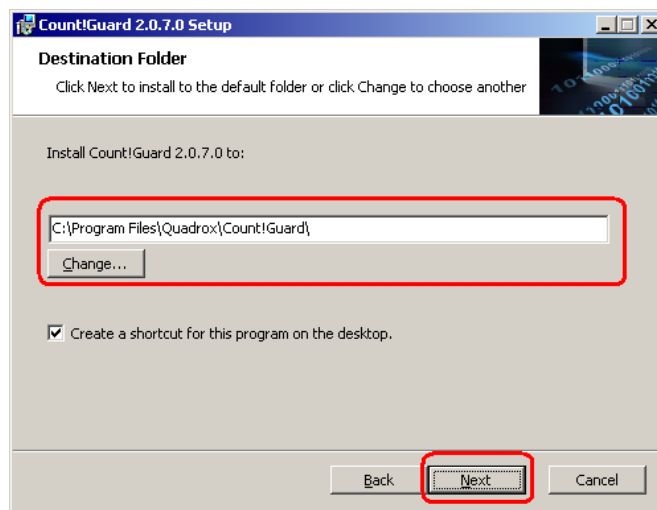
4. Carefully read the **License Agreement**, accept it and click **Next**.



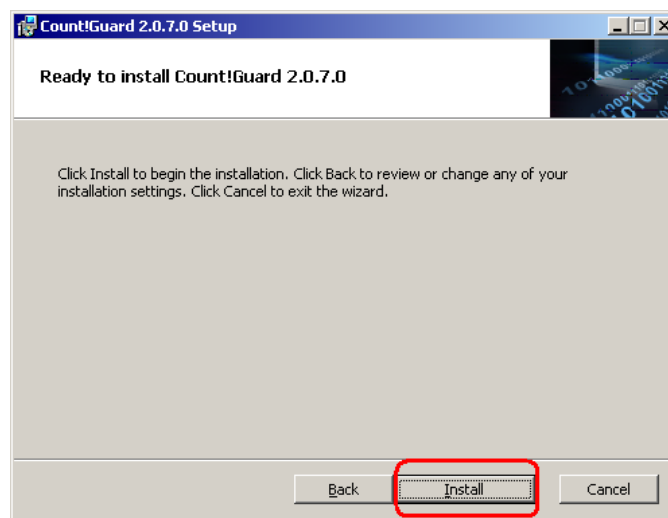
5. Select the default measurement system



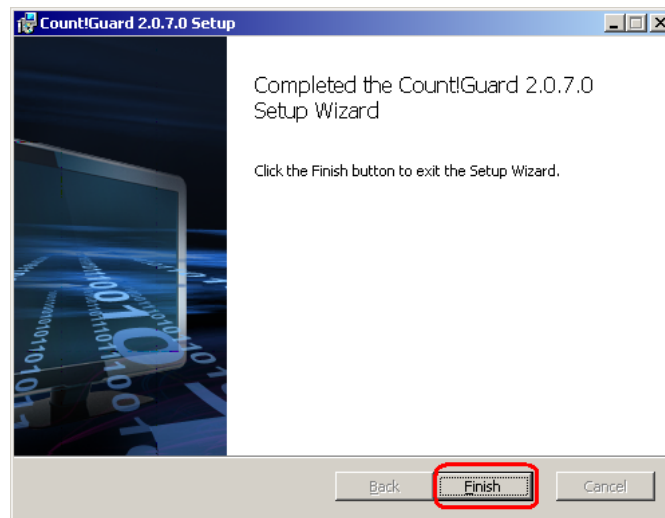
6. Select the installation directory of your choice and click **Next**.



7. Click **Install**.



8. Click **Finish**.







3 Web Application

There are two applications that can be used to configure and use Count!Guard:

- **Web Application:** The web application is the default application that should be used. It is reachable at all times; meaning from every computer in the network and from Internet if the network was configured properly. Both local and remote usages are possible with the web application.
- **Local Application:** This application is for local use only whereas the web application also can be used for remote connection. The local application should be used only in exceptional cases as difficult parameterization or problems with the web application.

The following icons on the desktop can be used:

| Count!Guard Desktop Icons | | | |
|---|---|---|---|
|  | Opens the Count!Guard Web Application. |  | Starts the Count!Guard server. Only useful if the Count!Guard server was stopped manually! |
|  | Opens the Count!Guard Local Application. |  | Stops the Count!Guard server. |



The Count!Guard server is started automatically when the computer has started up and runs as a service in the background.



Be careful. Stopping the server stops the counting and doesn't resume automatically till you click the Start Count!Guard Server icon on the desktop or have restarted the computer.



If you chose not to install shortcut icons during the installation, you always can performs the actions described above through **Start → Program Files → Count!Guard.**

The following sections explain how to configure and use the web application and how to configure your camera in the web application.

3.1 Getting started

To open the web application, click the Count!Guard Web Application icon on your desktop:

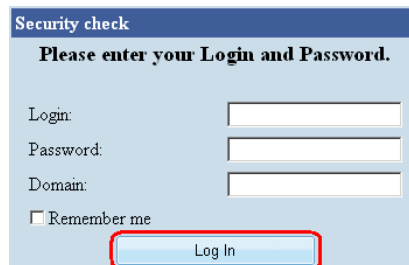


The login page will be opened. To log in, please enter the following parameters:

- **Login:** User name
- **Password:** Password of the user
- **Domain:** This field is not required when the computer is not part of a domain.



You can login with the same credentials as for WebCCTV. Count!Guard uses the WebCCTV user management for its authentication.

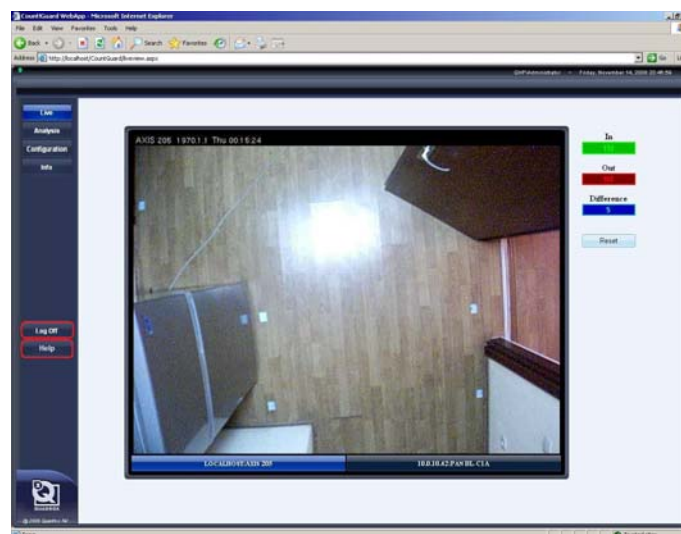
A web form titled 'Security check' with the instruction 'Please enter your Login and Password.' It contains three input fields for 'Login:', 'Password:', and 'Domain:'. Below these is a checkbox labeled 'Remember me' and a 'Log In' button, which is highlighted with a red rectangle.

Login Screen

Click the **Log in** button. The Web Application will open in the **Live** menu.



Select the **Remember me** option when you want to be logged in automatically in the future.



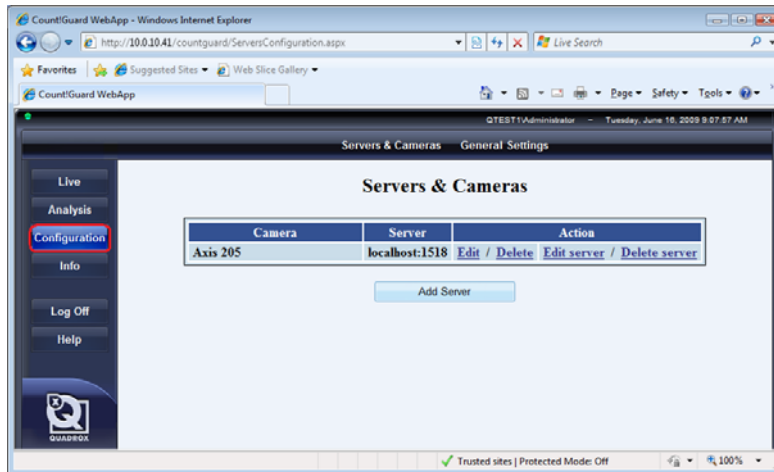
Live Screen

To log off from the current account, click **Log off** button. To access Count!Guard Help documentation, click **Help** button.

3.2 Configuration

To configure Count!Guard, click the **Configuration** button in the left panel of the web application. The following topics are configured in the Configuration menu:

- Servers
- Cameras
- Recordings (General Settings)

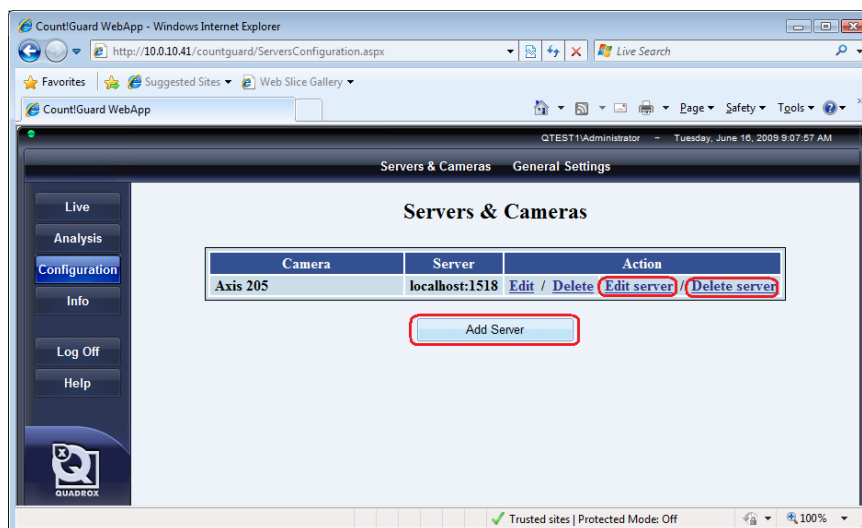


Configuration Screen

3.2.1 Servers

There must be a connection to a WebCCTV server to be able to receive streaming video and be able to get counts. Configuring a server is done in the **Servers & Cameras** screen of the **Configuration** menu and allows to:

- Add server
- Edit server
- Delete server

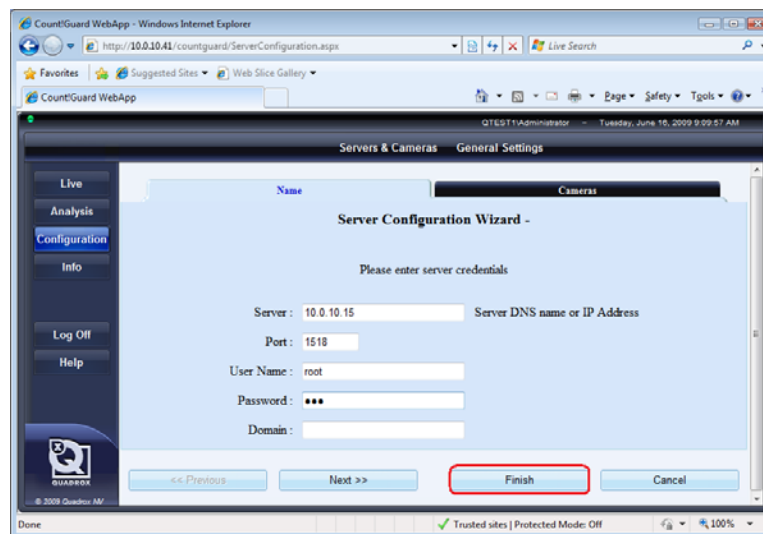


Servers & Cameras Screen

3.2.1.1 Add server

To add a server, click the **Add Server** button in the Servers & Cameras screen and enter the following fields:

- **Server** – If you are going to add a local WebCCTV server, this becomes local host (=127.0.0.1). Otherwise this is the IP-address of the WebCCTV server.
- **Port** – By default 1518. This is the communication port with the WebCCTV server.
- **Username** – User who has access rights for the WebCCTV server.
- **Password** – Password of user above.
- **Domain** – Not required if the WebCCTV is not part of a domain.



Add Server Screen

Click **Finish**.

To cancel your changes, click **Cancel** button.

3.2.1.2 Edit server

To edit a server, execute the following steps:

- Click the **Edit Server** link on the **Servers & Cameras** page.
- Change the desired settings and click **Finish**. Your server has been edited.

To go back to the Servers and Cameras page without making changes, click **Cancel** button.

3.2.1.3 Delete server

To delete a server, execute the following step:

- Click the **Delete Server** link on the **Servers & Cameras** page.

Your server has been deleted.

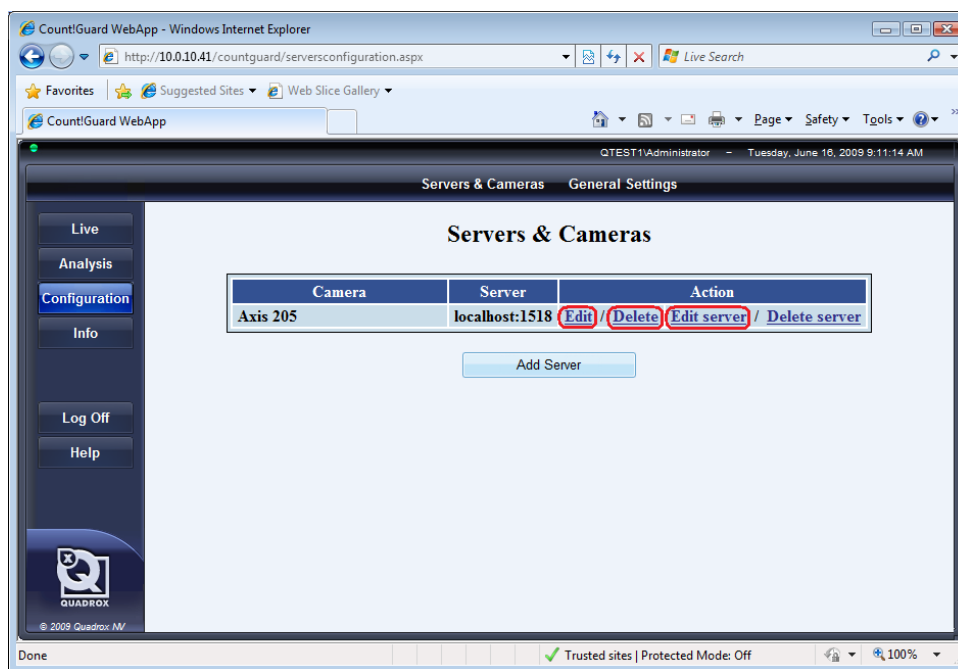
3.2.2 Cameras

In order to have streaming video and get counts, a camera from an added WebCCTV server has to be selected and configured. Selecting and configuring a camera is done in the **Servers & Cameras** page of the **Configuration** tab and allows to:

- Add camera
- Delete camera
- Edit & Configure camera (Counting Algorithm)



The camera configuration (**algorithm**) is the core of the Count!Guard application. The **counting accuracy** depends mainly on this configuration!

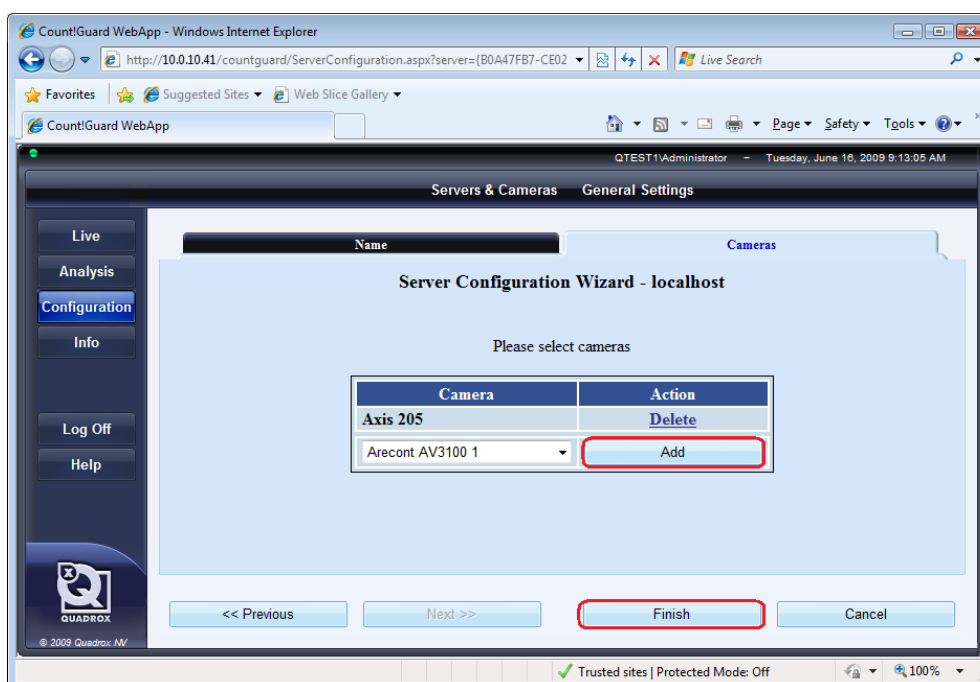


Servers & Cameras Screen

3.2.2.1 Add camera

To add a camera that is connected to a server that is added in the Count!Guard application, execute the following steps:

- Select the server in the **Servers & Cameras** page and click the **Edit Server** link.
- Select the **Cameras** tab and use drop down list to choose a camera.
- Click **Add**.
- Click **Finish**. Your camera has been added.



Add Camera Screen

To go back to the Servers and Cameras page without making changes, click **Cancel** button.

3.2.2.2 Delete camera

To delete a camera , execute the following step:

- Click the **Delete** link on the **Servers & Cameras** page.

Your camera has been deleted.

3.2.2.3 Edit & Configure camera (Counting Algorithm)

3.2.2.3.1 Camera and Positioning requirements

Before we can start the camera configuration, check first if the following requirements are met. Not meeting these requirements may lead to inaccurate counts and abnormal behavior of the Count!Guard application.

Requirements:

- The camera is positioned higher than 2.50 meters (8.2 feet).
- The camera is mounted vertically (horizontal and vertical deviation angle = 0°). This means it is looking straight down.



The vertical deviation angle may go up to 30° but can influence the counting accuracy. The vertical angle is the angle measured in the flow direction of the moving persons.

- The camera delivers +/-25 fps to the WebCCTV server.
- The image resolution has to be at least QVGA (320x240).

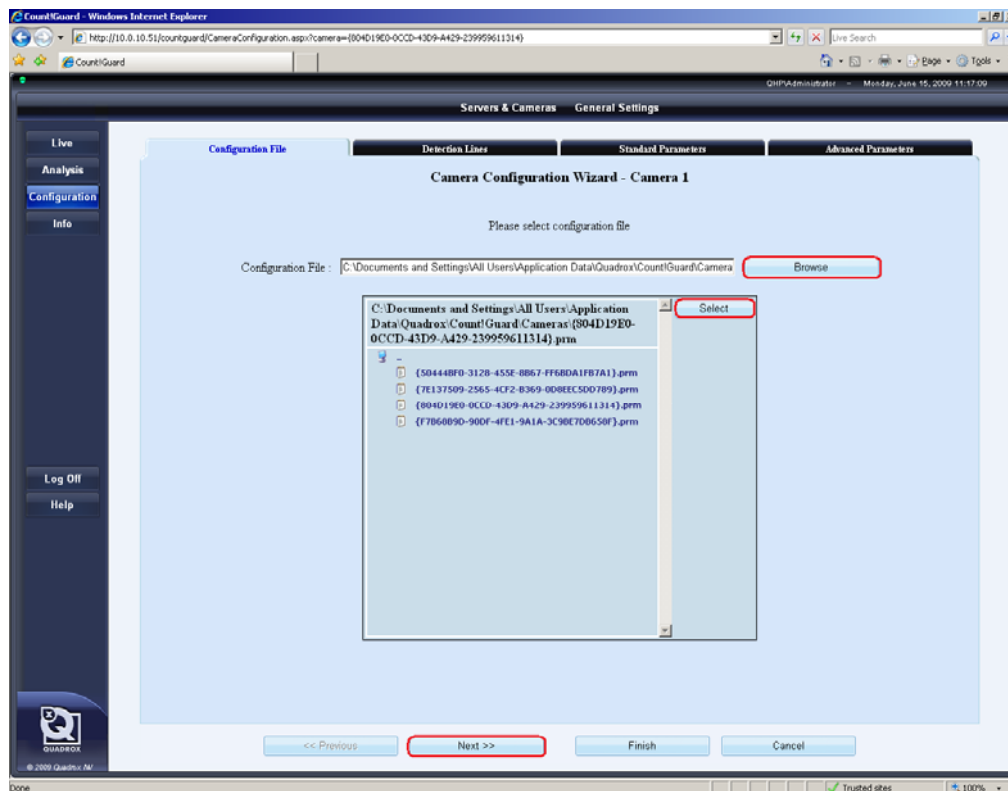
- Lighting conditions: daylight or similar lighting.
- The camera streams in JPEG.

3.2.2.3.2 Camera Configuration

In normal circumstances, a basic camera configuration is enough to get accurate counts.

Execute the following steps for a basic configuration:

- Click the **Edit** link on Servers & Cameras page. The Camera Configuration Wizard is opened in the **Configuration File** tab.
- **Select the configuration file:** By default the system generates automatically a configuration file based on the internal GUID (identifier of the camera in the system). You can rename the file if wanted to a name at your choice. Don't forget to add the extension .prm to your file name. If you have already some configuration files on your computer, click the **Browse** button, select the path and click **Select**.



Configuration File Screen

By default, the folder for the configuration files is:

- Windows XP Pro:
C:\Documents and Settings\All Users\Application Data\Quadrox\Count!Guard\Cameras\{GUID}.prm
- Windows Vista:
C:\ProgramData\Quadrox\Count!Guard\Cameras\{GUID}.prm

- Click **Next**. The **Detection Lines** tab is opened.



- Draw the **Detection Lines** and **Flow Direction**.

Detection Lines - set of lines along which detection of moving objects is performed. At least 2 lines must be defined, 3 is the recommended value. Drawing the detection lines can be performed by using left mouse button. (One click to start a line, one click to finish a line)

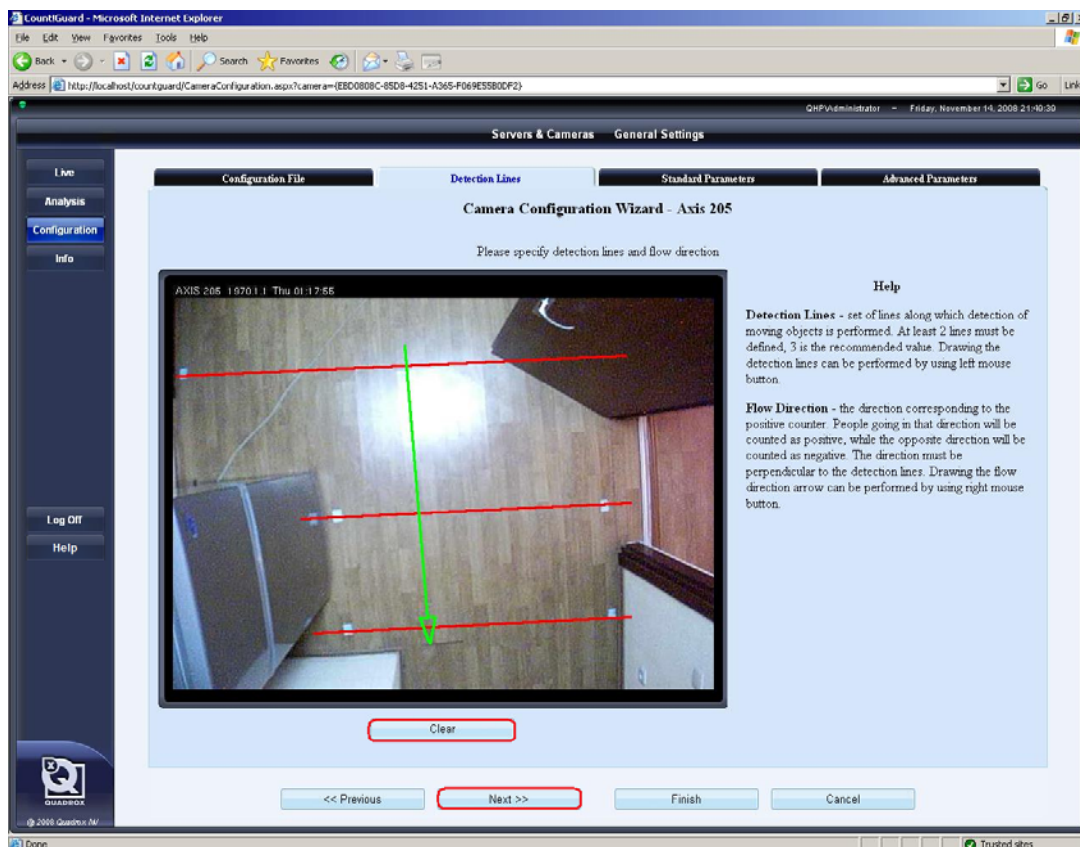


Flow Direction - the direction corresponding to the positive counter. People going in that direction will be counted as positive, while the opposite direction will be counted as negative. The direction must be perpendicular to the detection lines. Drawing the flow direction arrow can be performed by using right mouse button. (One click to start a line, one click to finish a line)



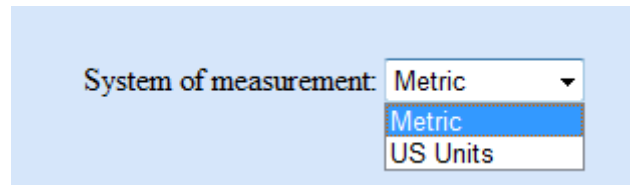
The space between the detection lines has to be minimum 40 cm (0.125 feet) and maximum 70 cm (0.2 feet) and is measured on shoulder height.

An example of the detection lines and flow direction is shown below. Use the **Clear** button to clear the screen.



Detection Lines Screen

- Click **Next**. The **Standard Parameters** tab is opened.
- Select the **System of measurement** from the drop-down list.



When the **Metric** system is selected, the values for People width and Camera height parameters will be entered in meters. When the **US Units** system is selected, the values will be entered in feet.

▪ Specify the following **Standard Parameters**:

- **People width (m)** – This parameter is used to calculate how many persons are crossing a line at the same time. Normally this is +/-50 cm (1.6 feet).



This parameter is measured in meters.

- **Camera height (m)** – Height between the floor and the lens of the camera.



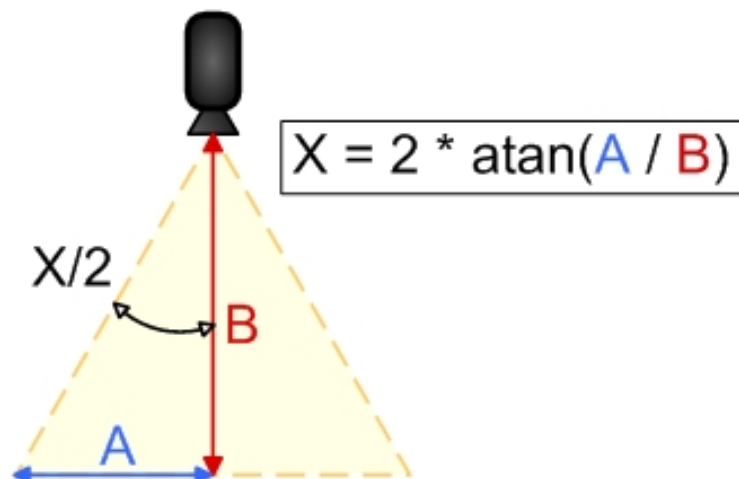
The minimum height is 2.50 meters (8.2 feet). This parameter is measured in meters.

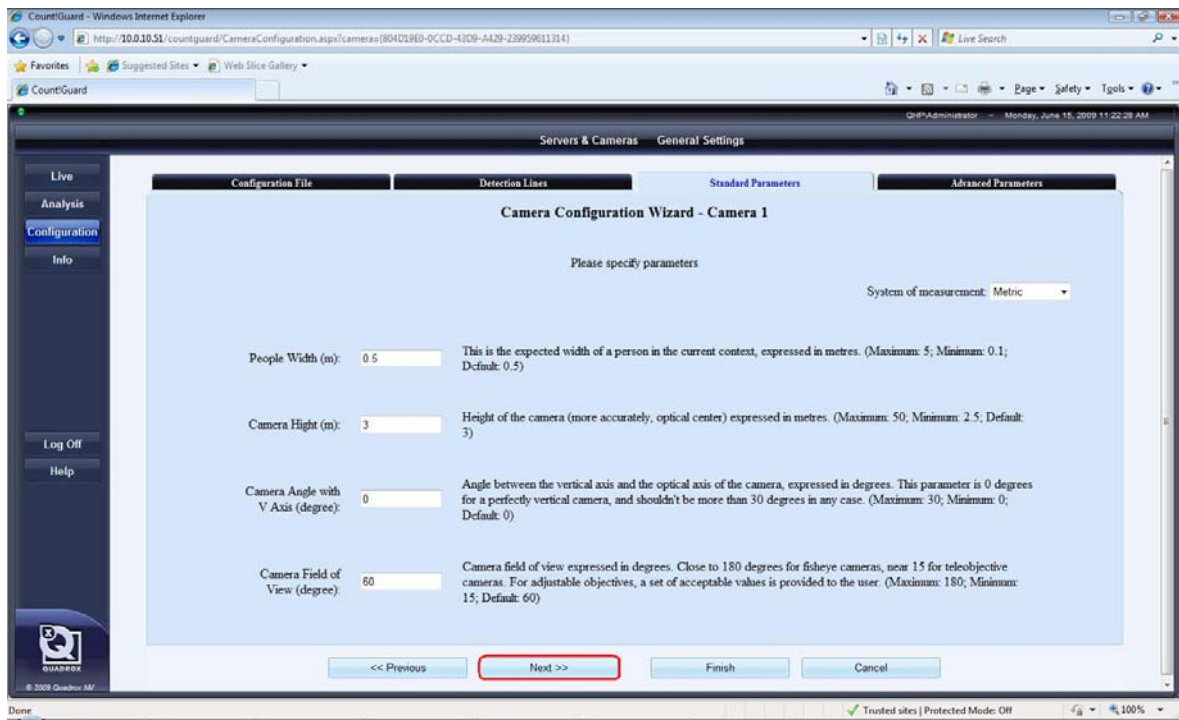
- **Camera angle with V Axis (degree)** – This should be 0°.



The vertical deviation angle may go up to 30° but can influence the counting accuracy. The vertical angle is the angle measured in the flow direction of the moving persons.

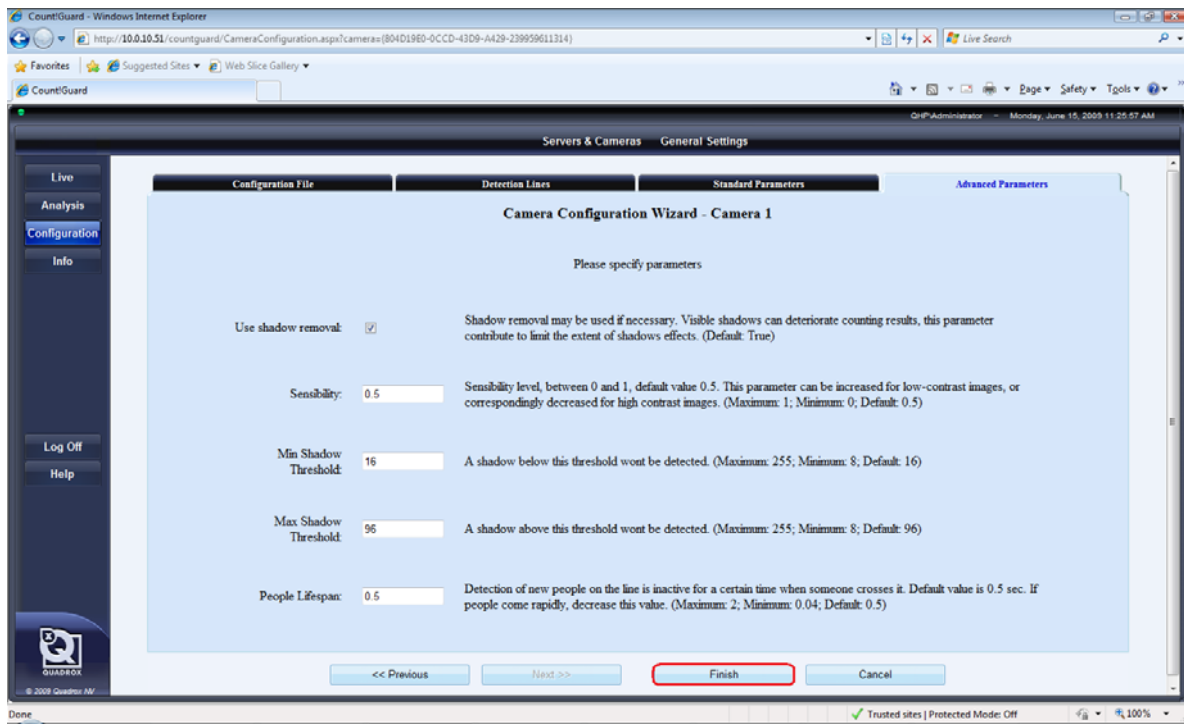
- **Camera field of view (degree)**. You can find your horizontal viewing angle in the specification of your camera or lens. If you don't find the angle in the specification, calculate it as following (x = field of view (degree)).





Standard Parameters Screen

- Click **Next**. The **Advanced Parameters** tab is opened.
- Specify the following **Advanced Parameters** if needed. This is only necessary in non-standard environments:
 - **Use shadow removal** – Visible shadows may deteriorate counting results. This parameter reduces the shadow effect. It is enabled by default.
 - **Sensibility** – Value between 0 and 1, default value 0,5. This parameter can be increased for low contrast images or decreased for high contrast images.
 - **Min Shadow threshold** – Don't change this parameter unless requested by your installer or support.
 - **Max Shadow threshold** – Don't change this parameter unless requested by your installer or support.
 - **People lifespan** – This parameter is used to configure how fast people are entering after each other. By default this is 0.5 seconds. In crowded environments this can be lowered (minimum = 0.3 seconds).



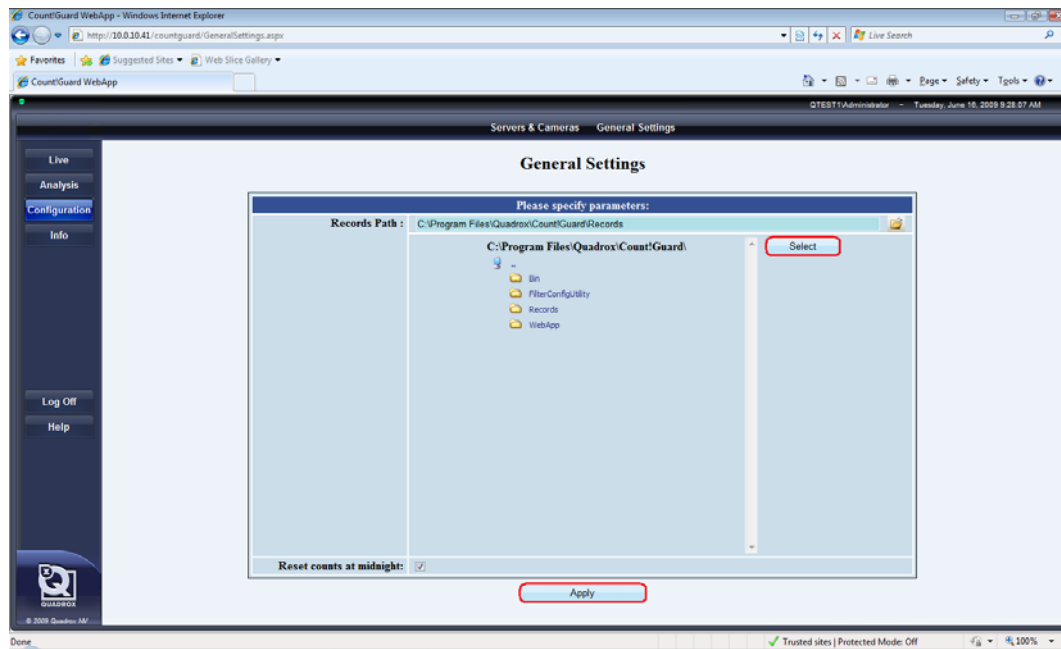
Advanced Parameters Screen

- Click **Finish**. The configuration is saved.

You can leave the configuration wizard at any time by clicking the **Cancel** button. Navigating to previous tabs is performed by clicking the **Previous** button.

3.2.3 Recordings

When your server and cameras are configured, the Count!Guard application will start counting and all data will be recorded. The Records path is configured in the **General Settings** screen.



General Settings Screen

All counting data for all servers and cameras is stored in the records folder.



By default, this folder is C:\Program Files\Quadrox\Count!Guard\Records.

To change this folder, browse your computer, select the folder, click **Select**. Click the **Apply** button to save the new path.



To create a new folder select the path on the disk for this folder, click **Select**, type the name of the folder and put \ and click **Apply**. For example, select C:\Program Files\Quadrox\. Type folders name with \ at the end C:\Program Files\Quadrox\Test\. The folder for counts will be created.

Furthermore you can find the **Reset counts at midnight parameter** in this menu. If checked, the visualized counting on the Live tab will be reset to zero at midnight.



Your data is not lost when this parameter is applied. All data is stored and can be retrieved by the export feature (See **3.2.2.2. Export**)

3.3 Using Count!Guard

3.3.1 Live

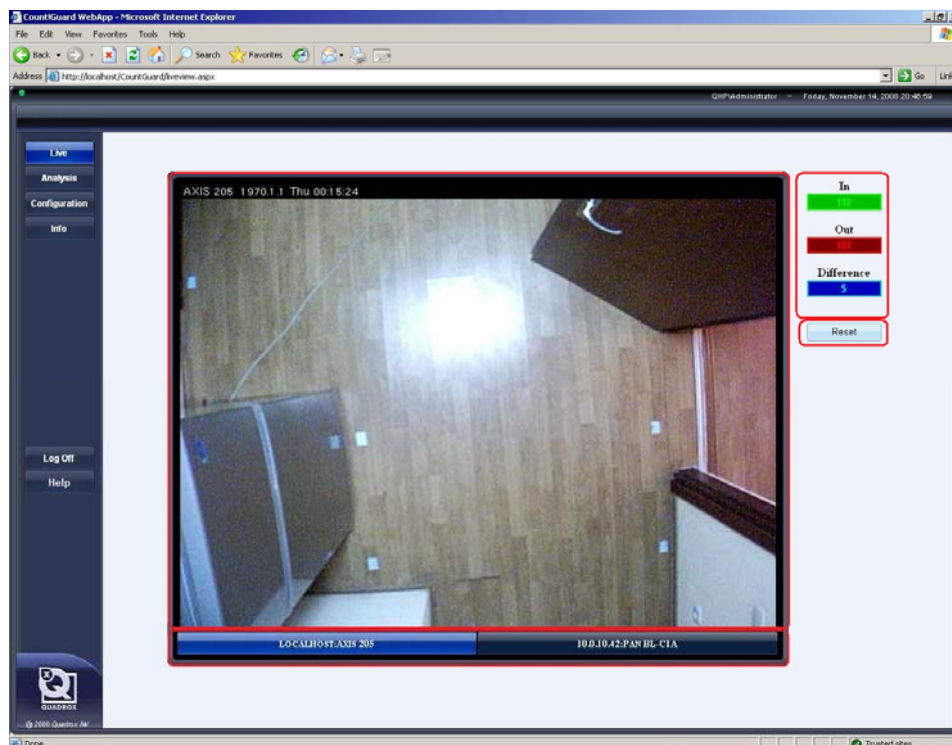
To open the web application, click the Count!Guard Web Application icon on your desktop. Enter your login credentials and click **Login**. The Count!Guard Web Application opens in the **Live** menu.

The Live screen consists of the following parameters/fields:

- **Selection Cameras** – Choose which of the connected cameras to be visualized in the viewing window.
- **View window** – Visualizes the real time image/stream of the selected camera. In addition you get information about the name of the camera and the server where the camera is connected to.
- **Counts** – The counts sections gives an overview of the following parameters:
 - **IN**: Amount of counted objects entering the site.
 - **OUT**: Amount of counted object leaving the site.
 - **DIFFERENCE**: Difference between IN and OUT.
- **Reset** – This button resets the IN/OUT numbers to zero in order to restart your 'live' counting.



Your data is not lost when press the **Reset** button. All data is stored and can be retrieved by the export feature (See **3.3.2.2. Export**)

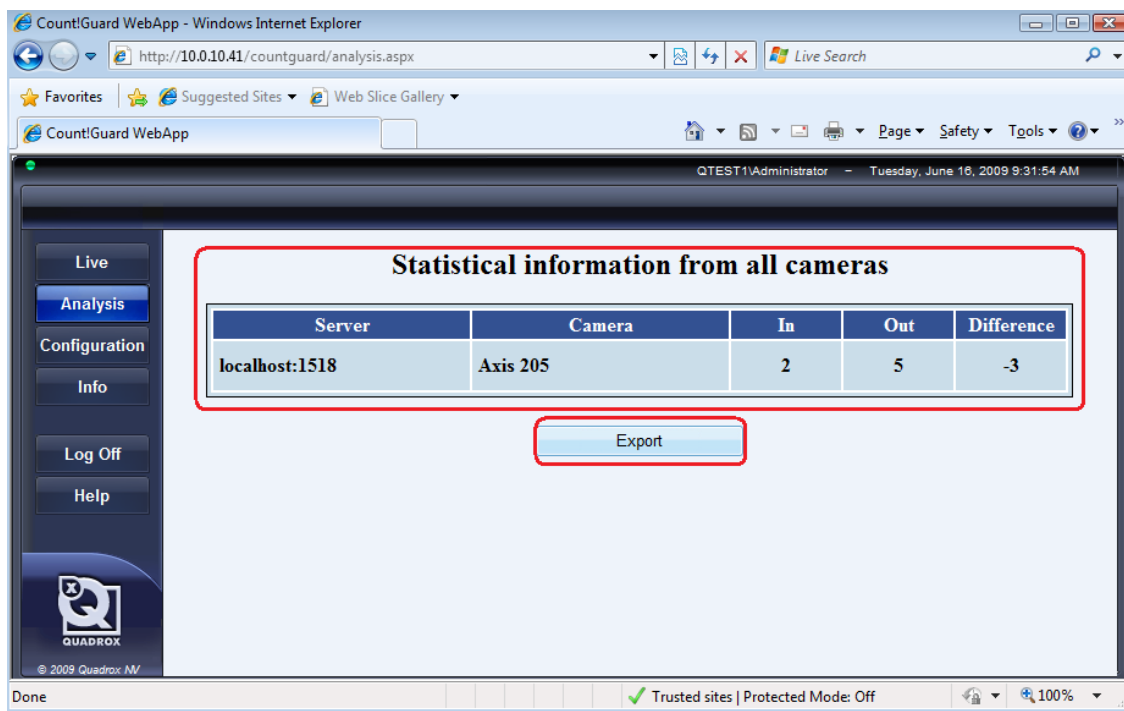


Live Screen

3.3.2 Analysis

The analysis menu allows the user to retrieve present or historical information about counts. There are two sections:

- Overall information from all cameras.
- Export statistical data.



Analysis Screen

3.3.2.1 Overall information

This section gives an overview the cameras that are configured in the Count!Guard application and gives the IN/OUT DIFFERENCE total for each camera for the present day.

3.3.2.2 Export

The Count!Guard application allows the user to export data to files with .xls extension. Exported data will be saved on your computer and represented by graphs, pivot tables and raw data when opened in Microsoft Office Excel (2003 SP3 / 2007) or another program that is able to open .xls files (e.g Open Office).

3.3.2.2.1 Creating

In order to create an export, execute the following steps in the **Analysis** menu:

- Click **Export**.
- Select the camera(s) of which you want to export data.

Exporting

Please specify the start and end date:

From: Monday, November 17, 2008 3:13:00 PM

< November 2008 >

| Su | Mo | Tu | We | Th | Fr | Sa |
|----|----|----|----|----|----|----|
| 26 | 27 | 28 | 29 | 30 | 31 | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 1 | 2 | 3 | 4 | 5 | 6 |

Hour: 15 Minutes: 13

Select

To: Monday, November 17, 2008 3:13:00 PM

Please specify the cameras:

| Select/Deselect | Server | Camera |
|-------------------------------------|-----------------|------------|
| <input checked="" type="checkbox"/> | localhost:1518 | Axis 205 |
| <input type="checkbox"/> | 10.0.10.42:1518 | Pan BL-C1A |

Export
Cancel

Export Select Cameras Screen

- Select the period for which you want to create an export.

Exporting

Please specify the start and end date:

From: Monday, November 17, 2008 3:13:00 PM
 To: Monday, November 17, 2008 3:13:00 PM

< November 2008 >

| Su | Mo | Tu | We | Th | Fr | Sa |
|----|----|----|----|----|----|----|
| 26 | 27 | 28 | 29 | 30 | 31 | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 1 | 2 | 3 | 4 | 5 | 6 |

Hour: 15 Minutes: 13

Select

Please specify the cameras:

| Select/Deselect | Server | Camera |
|-------------------------------------|-----------------|------------|
| <input checked="" type="checkbox"/> | localhost:1518 | Axis 205 |
| <input type="checkbox"/> | 10.0.10.42:1518 | Pan BL-C1A |

Export
Cancel

Export Select Time Period Screen

- Click **Export**.

Exporting

Please specify the start and end date:

From: Monday, November 17, 2008 3:13:00 PM

To: Monday, November 17, 2008 3:13:00 PM

≤ **November 2008** ≥

| Su | Mo | Tu | We | Th | Fr | Sa |
|----|----|----|----|----|----|----|
| 26 | 27 | 28 | 29 | 30 | 31 | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | 1 | 2 | 3 | 4 | 5 | 6 |

Hour: 15 Minutes: 13

Select

Please specify the cameras:

| Select/Deselect | Server | Camera |
|-------------------------------------|-----------------|------------|
| <input checked="" type="checkbox"/> | localhost:1518 | Axis 205 |
| <input type="checkbox"/> | 10.0.10.42:1518 | Pan BL-C1A |

Export
Cancel

Export Confirmation Screen

- A File Download window will appear. Click **Save**.

Exporting

Please specify the start and end date:

From: Monday, November 17, 2008 3:13:00 PM

To: Monday, November 17, 2008 3:13:00 PM

Please specify the cameras:

| Select/Deselect | Server | Camera |
|-------------------------------------|-----------------|------------|
| <input checked="" type="checkbox"/> | localhost:1518 | Axis 205 |
| <input type="checkbox"/> | 10.0.10.42:1518 | Pan BL-C1A |

File Download

Do you want to save this file?

Name: Count!GuardStatistic 17.11.2008.xls

Type: Unknown File Type, 382 KB

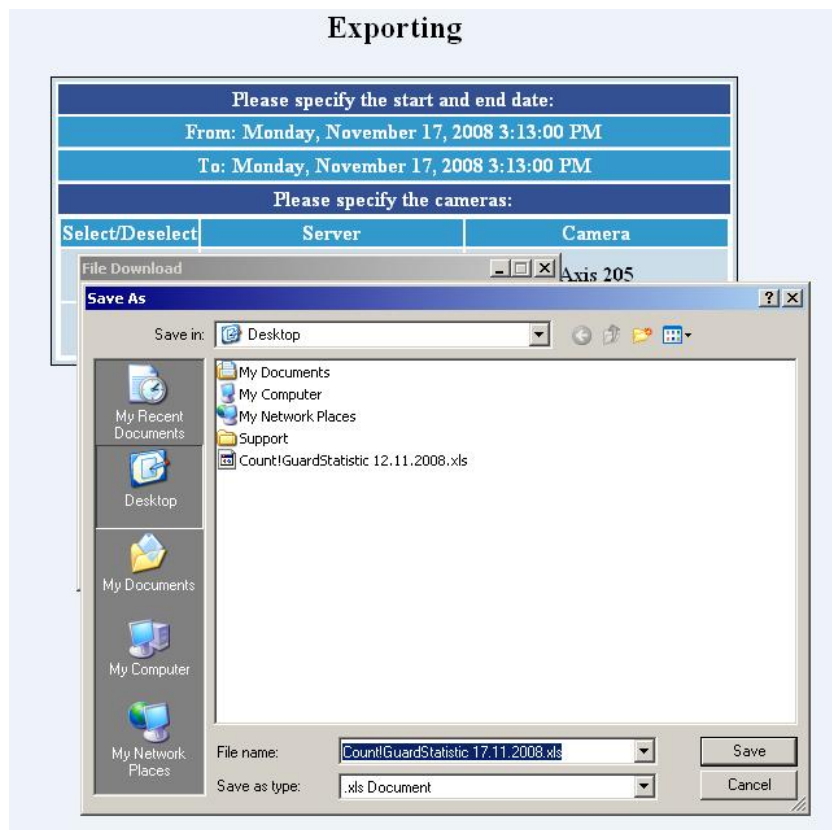
From: localhost

Save Cancel

While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not save this file. [What's the risk?](#)

File Download Screen

- Select the path where you want to save the export file. Click **Save**. Your data is exported.



Export Path Selection Screen

If you want to cancel the export process, click **Cancel** at any time.

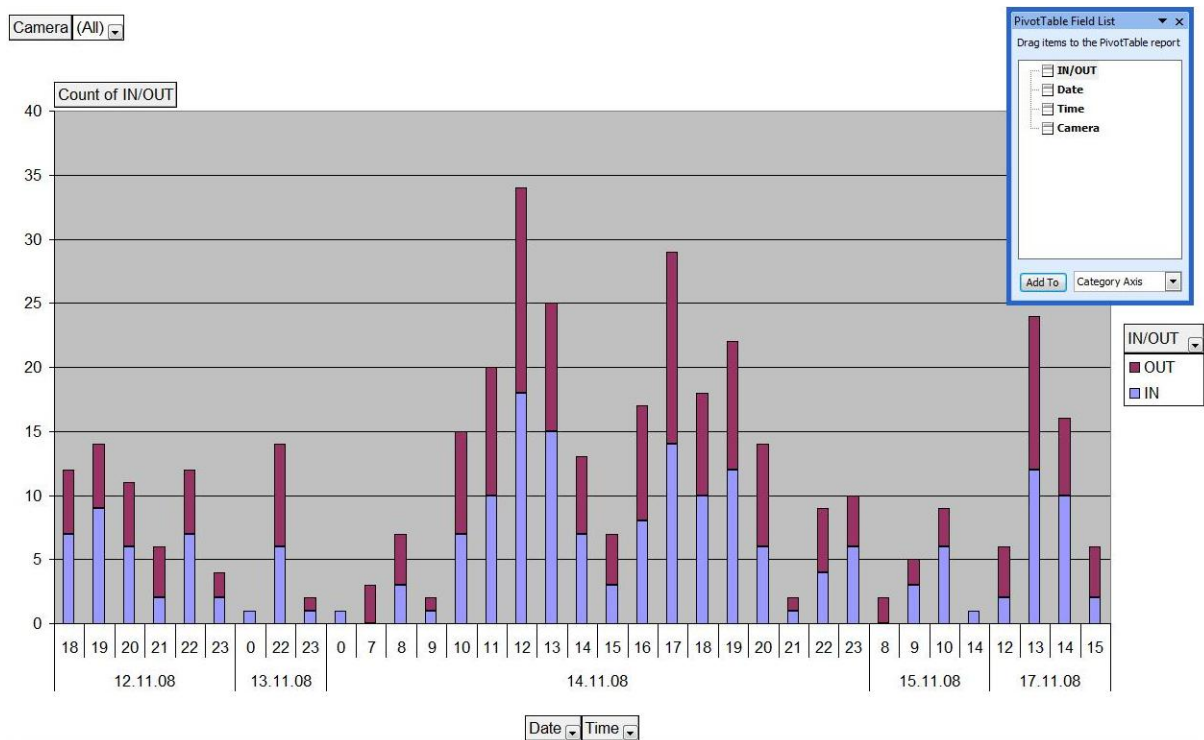
3.3.2.2.2 Export Example

An exported file can be opened in Microsoft Office Excel (2003 SP3 / 2007) or another program that is able to open .xls files (e.g. Open Office) and consists of:

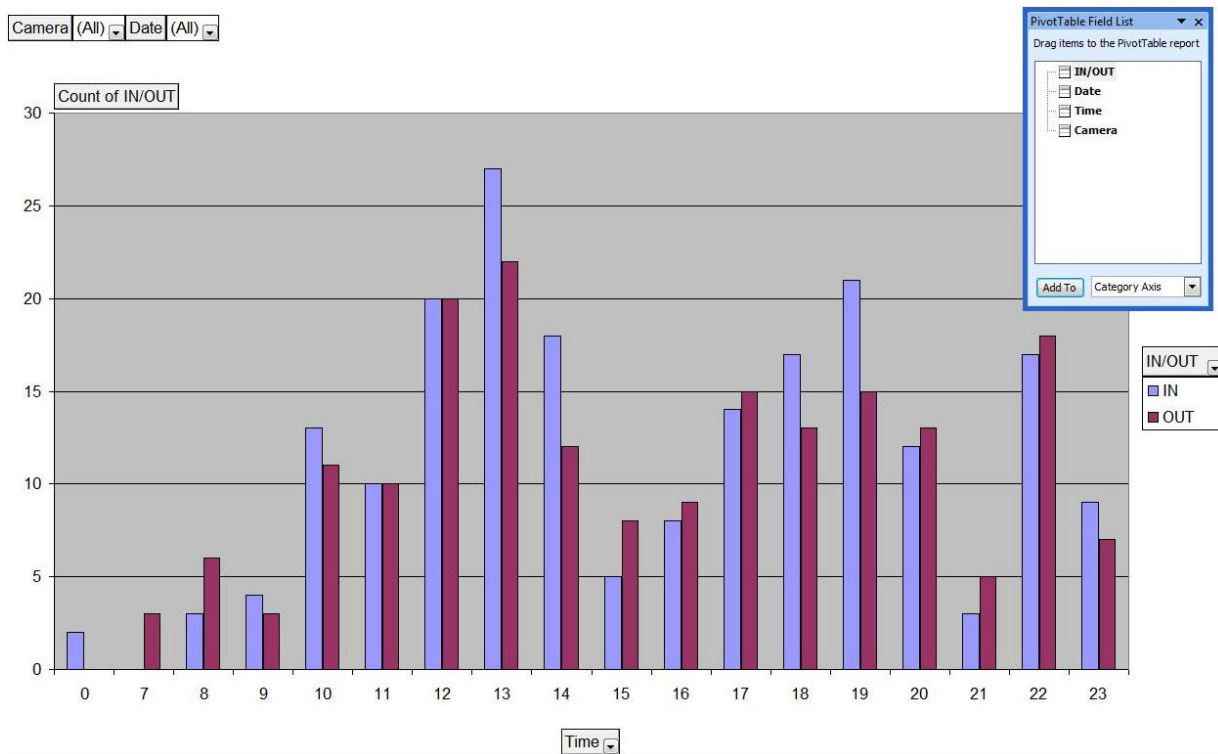
- Raw data
- Customizable graphs (based on Pivot Tables).

By default the following sheets will be present in an exported file:

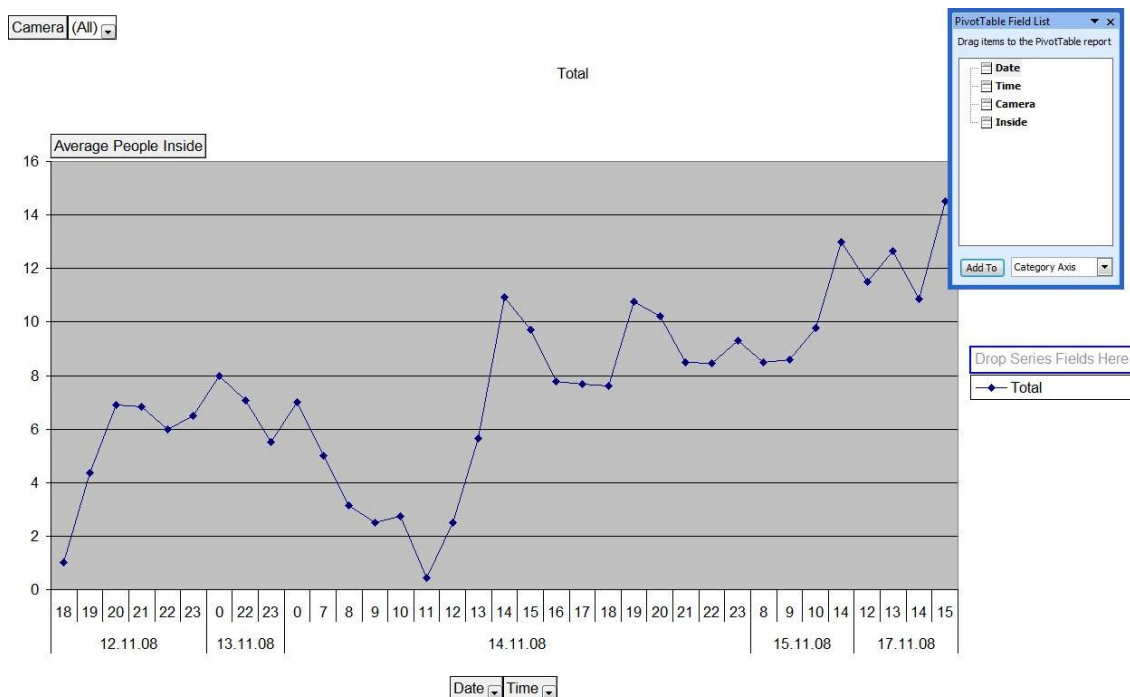
▪ **Timeline Chart:**



▪ **Counts per hour Chart:**



People in shop Chart:

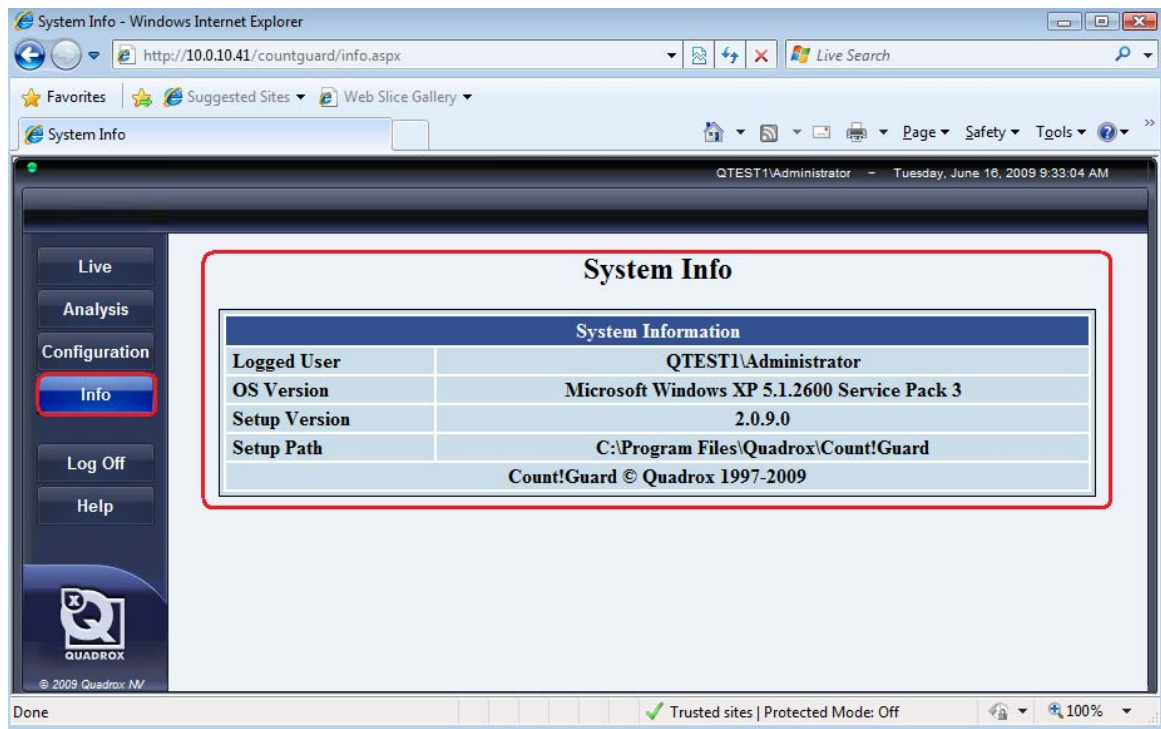


- Raw Data:** You can use the raw data to create graphs, pivot tables or other actions yourself.

| | A | B | C | D | E |
|----|--------|------------|----------|----------|--------|
| 1 | IN/OUT | Date | Time | Camera | Inside |
| 2 | IN | 12.11.2008 | 18:03:51 | Axis 205 | 1 |
| 3 | OUT | 12.11.2008 | 18:03:55 | Axis 205 | 0 |
| 4 | IN | 12.11.2008 | 18:14:56 | Axis 205 | 1 |
| 5 | IN | 12.11.2008 | 18:24:50 | Axis 205 | 2 |
| 6 | OUT | 12.11.2008 | 18:25:00 | Axis 205 | 1 |
| 7 | OUT | 12.11.2008 | 18:26:59 | Axis 205 | 0 |
| 8 | IN | 12.11.2008 | 18:28:56 | Axis 205 | 1 |
| 9 | IN | 12.11.2008 | 18:38:00 | Axis 205 | 2 |
| 10 | OUT | 12.11.2008 | 18:39:18 | Axis 205 | 1 |
| 11 | OUT | 12.11.2008 | 18:52:01 | Axis 205 | 0 |
| 12 | IN | 12.11.2008 | 18:52:05 | Axis 205 | 1 |
| 13 | IN | 12.11.2008 | 18:58:06 | Axis 205 | 2 |
| 14 | OUT | 12.11.2008 | 19:00:37 | Axis 205 | 1 |
| 15 | IN | 12.11.2008 | 19:00:45 | Axis 205 | 2 |
| 16 | OUT | 12.11.2008 | 19:01:41 | Axis 205 | 1 |
| 17 | IN | 12.11.2008 | 19:01:50 | Axis 205 | 2 |
| 18 | IN | 12.11.2008 | 19:05:35 | Axis 205 | 3 |
| 19 | IN | 12.11.2008 | 19:20:14 | Axis 205 | 4 |
| 20 | IN | 12.11.2008 | 19:20:59 | Axis 205 | 5 |
| 21 | IN | 12.11.2008 | 19:24:59 | Axis 205 | 6 |
| 22 | OUT | 12.11.2008 | 19:25:58 | Axis 205 | 5 |
| 23 | IN | 12.11.2008 | 19:30:27 | Axis 205 | 6 |
| 24 | IN | 12.11.2008 | 19:40:23 | Axis 205 | 7 |
| 25 | OUT | 12.11.2008 | 19:43:31 | Axis 205 | 6 |
| 26 | IN | 12.11.2008 | 19:56:04 | Axis 205 | 7 |
| 27 | OUT | 12.11.2008 | 19:57:55 | Axis 205 | 6 |
| 28 | OUT | 12.11.2008 | 20:17:03 | Axis 205 | 5 |
| 29 | IN | 12.11.2008 | 20:17:18 | Axis 205 | 6 |
| 30 | IN | 12.11.2008 | 20:23:43 | Axis 205 | 7 |
| 31 | IN | 12.11.2008 | 20:42:47 | Axis 205 | 8 |
| 32 | OUT | 12.11.2008 | 20:43:44 | Axis 205 | 7 |
| 33 | OUT | 12.11.2008 | 20:44:28 | Axis 205 | 6 |
| 34 | IN | 12.11.2008 | 20:46:02 | Axis 205 | 7 |
| 35 | IN | 12.11.2008 | 20:49:04 | Axis 205 | 8 |
| 36 | OUT | 12.11.2008 | 20:51:40 | Axis 205 | 7 |
| 37 | IN | 12.11.2008 | 20:52:14 | Axis 205 | 8 |
| 38 | OUT | 12.11.2008 | 20:56:06 | Axis 205 | 7 |
| 39 | IN | 12.11.2008 | 21:03:27 | Axis 205 | 8 |
| 40 | OUT | 12.11.2008 | 21:04:17 | Axis 205 | 7 |
| 41 | IN | 12.11.2008 | 21:45:29 | Axis 205 | 8 |
| 42 | OUT | 12.11.2008 | 21:45:43 | Axis 205 | 7 |
| 43 | OUT | 12.11.2008 | 21:45:44 | Axis 205 | 6 |
| 44 | OUT | 12.11.2008 | 21:56:46 | Axis 205 | 5 |
| 45 | IN | 12.11.2008 | 22:38:50 | Axis 205 | 6 |
| 46 | OUT | 12.11.2008 | 22:39:04 | Axis 205 | 5 |
| 47 | OUT | 12.11.2008 | 22:39:09 | Axis 205 | 4 |
| 48 | IN | 12.11.2008 | 22:39:14 | Axis 205 | 5 |
| 49 | IN | 12.11.2008 | 22:44:30 | Axis 205 | 6 |
| 50 | IN | 12.11.2008 | 22:44:43 | Axis 205 | 7 |

3.3.3 Info

The **Info** menu gives detailed information about Count!Guard installation.



System Info Screen

The **System Information** section consists of the following parameters:


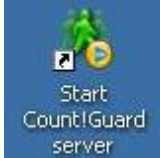


- **Logged User** – user that is logged in.
- **OS Version** – version of operating system installed.
- **Setup Version** – Count!Guard software version installed.
- **Setup Path** – directory where the Count!Guard software is installed.

4 Local Application

There are two applications that can be used to configure and use Count!Guard:

- **Local Application:** This application is for local use only whereas the web application also can be used for remote connection. The local application should be used only in exceptional cases as difficult parameterization or problems with the web application.
- **Web Application:** The web application is the default application that should be used. It is reachable at all times; meaning from every computer in the network and from Internet if the network was configured properly. Both local and remote usage are possible with the web application.

The following icons on the desktop can be used:

| Count!Guard Desktop Icons | | | |
|---|---|---|---|
|  | Opens the Count!Guard Web Application. |  | Starts the Count!Guard server. Only useful if the Count!Guard server was stopped manually! |
|  | Opens the Count!Guard Local Application. |  | Stops the Count!Guard server. |



The Count!Guard server is started automatically when the computer has started up and runs as a service in the background.



Be careful. Stopping the server stops the counting and doesn't resume automatically till you click the Start Count!Guard Server icon on the desktop or have restarted the computer.



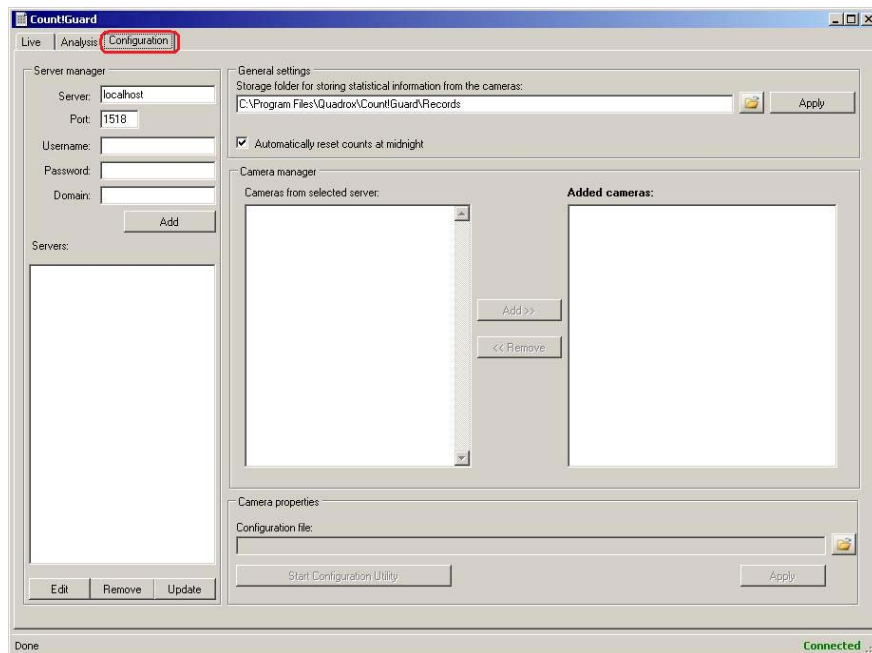
If you chose not to install shortcut icons during the installation, you always can performs the actions described above through **Start → Program Files → Count!Guard.**

The following sections explain how to configure and use the local application and how to configure your camera in the local application.

4.1 Configuration

To configure Count!Guard, click the **Configuration** tab of the local application. The following topics are configured in the Configuration menu:

- Servers
- Cameras
- Recordings (General Settings)

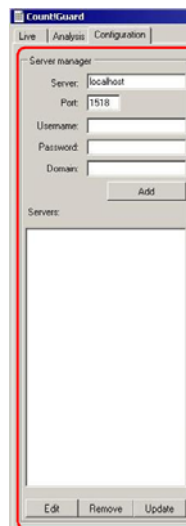


Configuration Screen

4.1.1 Servers

There must be a connection to a WebCCTV server to be able to receive streaming video and be able to get counts. Configuring a server is done in the **Server manager** section of the **Configuration** tab and allows to:

- Add server
- Edit and Update server
- Delete server



4.1.2.1 Add server

To add a server, enter the following fields:

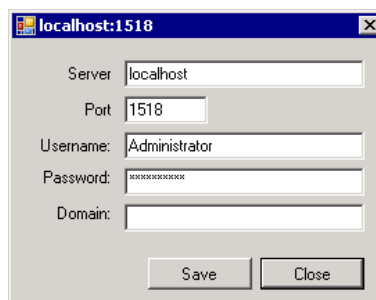
- **Server** – If you are going to add a local WebCCTV server, this becomes local host (=127.0.0.1). Otherwise this is the IP-address of the WebCCTV server.
- **Port** – By default 1518. This is the communication port with the WebCCTV server.
- **Username** – User who has access rights in the WebCCTV application.
- **Password** – Password of the user in step 3.
- **Domain** – Not required if the WebCCTV is not part of a domain.

Click **Add**. Your server will appear in the **Servers** panel.

4.1.2.2 Edit server

To edit a server, execute the following steps:

- Select the server you wish to edit from the **Servers** panel.
- Click **Edit**.
- Change the desired settings and click **Save**.

A screenshot of a Windows-style dialog box titled 'localhost:1518'. It contains five input fields: 'Server' with 'localhost', 'Port' with '1518', 'Username' with 'Administrator', 'Password' with a masked password 'xxxxxxxx', and 'Domain' which is empty. At the bottom are 'Save' and 'Close' buttons.

Edit Server Screen

Your server has been edited.



When clicking **Update**, the present connection with the selected server is **refreshed** without editing the credentials.

4.1.2.2 Delete server

To delete a server, execute the following steps:

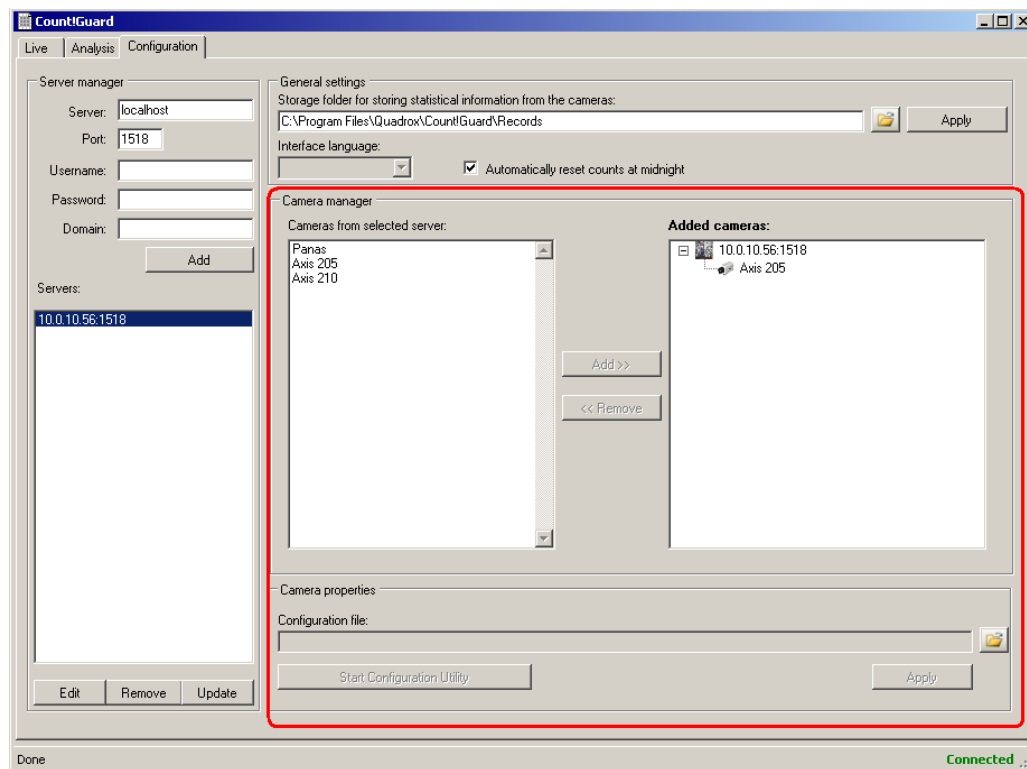
- Select the server you wish to remove from the **Servers** panel.
- Click **Remove**.

Your server has been deleted.

4.1.2 Cameras

In order to have streaming video and get counts, a camera from an added WebCCTV server has to be selected and configured. Selecting and configuring a camera is done in the **Cameras manager** section of the **Configuration** tab and allows to:

- Add camera
- Delete camera
- Edit & Configure camera (Counting Algorithm)



Camera Manager Screen



The camera configuration (**algorithm**) is the core of the Count!Guard application. The **counting accuracy** depends mainly on this configuration!

4.1.2.1 Add camera

To add a camera that is connected to a server that is added in the Count!Guard application, execute the following steps:

- Select a server in the **Servers** panel. The cameras on this server will appear in the **Cameras from selected server** panel.
- Click **Add>>**.

Your camera has been added to the **Added cameras** panel.

4.1.2.2 Delete camera

To delete a camera, execute the following steps:

- Select a camera in the **Added cameras** panel.
- Click <<**Remove**.

Your camera has been deleted.

4.1.2.3 Edit & Configure camera (Counting Algorithm)

4.1.2.3.1 Camera and Positioning requirements

Before we can start the camera configuration, check first if the following requirements are met. Not meeting these requirements may lead to inaccurate counts and abnormal behavior of the Count!Guard application.

Requirements:

- The camera is positioned higher than 2,50 meters (>8.2 feet).
- The camera is mounted vertically (horizontal and vertical deviation angle = 0°). This means it is looking straight down.



The vertical deviation angle may go up to 30° but can influence the counting accuracy. The vertical angle is the angle measured in the flow direction of the moving persons.

- The camera delivers +/-25 fps to the WebCCTV server
- The image resolution has to be at least QVGA (320x240) and preferably VGA (640x480).
- Lighting conditions: daylight or similar lighting.
- The camera streams in JPEG

4.1.2.3.2 Camera Configuration

In normal circumstances, a basic camera configuration is enough to get accurate counts.

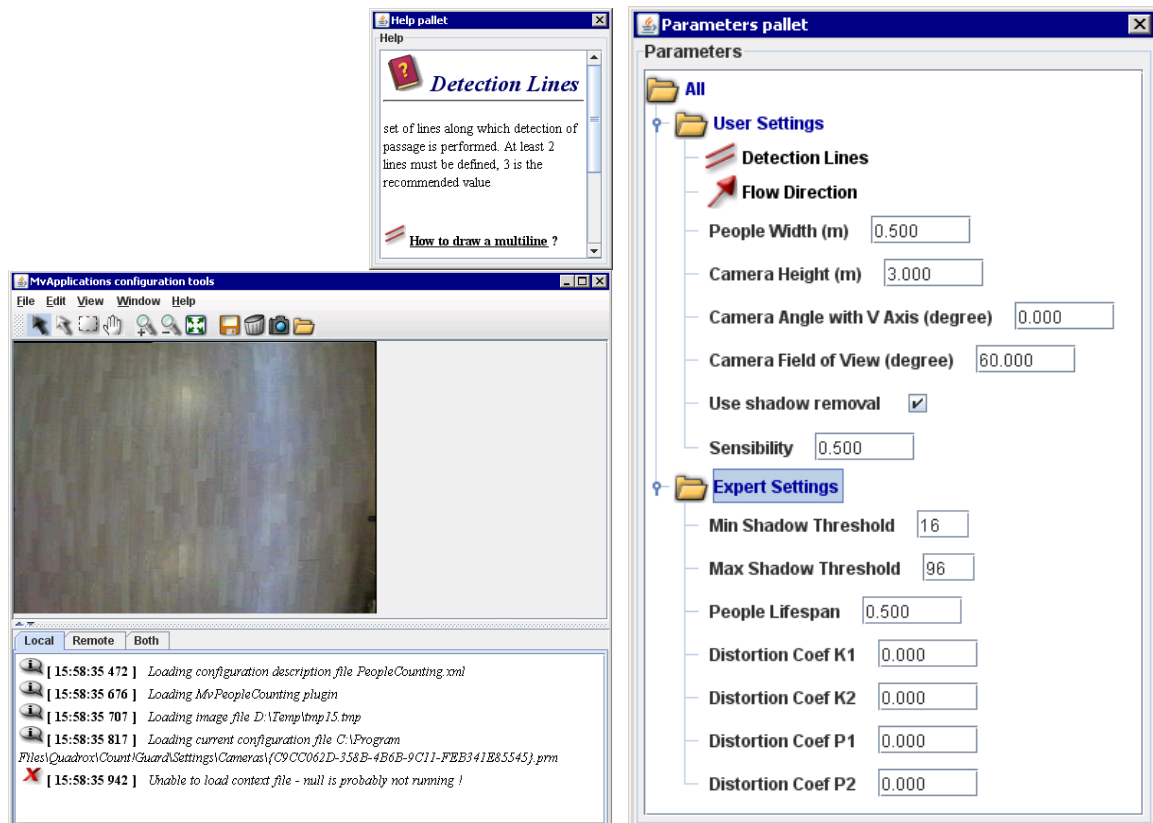
Execute the following steps for a basic configuration:

- Select a camera in the **Added cameras** panel.
- Click **Start Configuration Utility**.
- New windows will open. You need the **MvApplications Configurations Tools** and **Parameters Pallet** window. The other ones may be minimized or closed.

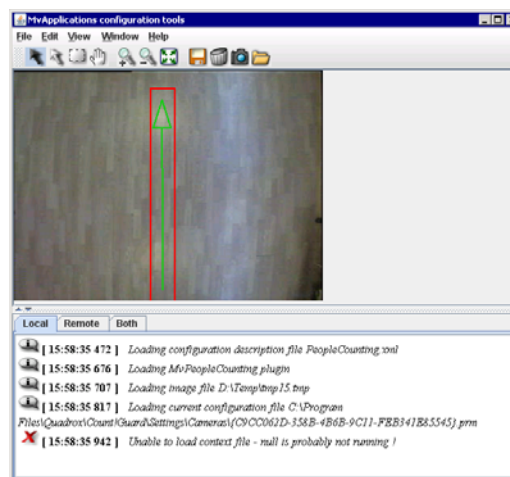


Information and explanation about parameters can be found in the **Help pallet**.

| Buttons MvApplications Configuration Tools Window | | | |
|---|--|--|---------------------------------------|
| | Select parameter area's (Example: Detection lines together) | | Fit image to your screen |
| | Select single object (Example: One detection line) | | Save your setting/context |
| | Allows seeing which parameter areas are present in the image by selecting an area. | | Delete all drawn objects on the image |
| | Move image when it is bigger as screen. | | Load an image |
| | Increase or decrease size of image | | Load a setting/context |



- Select **Flow Direction** in the Parameters pallet. Draw the flow direction on the image. An example is shown below.

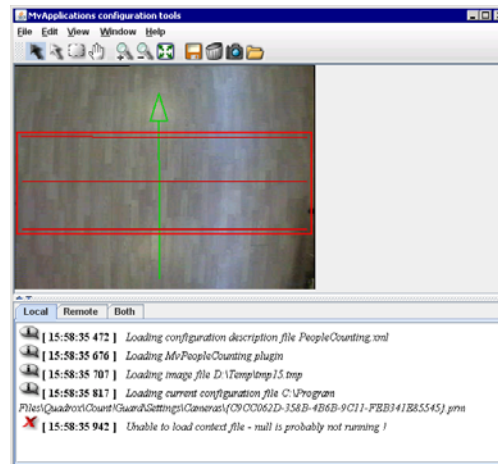


Flow Direction Screen



Drawing lines or arrows is done by clicking one time to select the begin point and clicking again where you want the line or arrow to end. Double click at the last end point of your lines or end point of your arrow to confirm the drawing. A red rectangle will appear around the lines or arrow.

- Select **Detection Lines** in the Parameters pallet. Draw 3 equal spread lines on the image that are positioned (more or less) perpendicular on the flow direction. An example is shown below.



Detection Lines Screen



Drawing lines or arrows is done by clicking one time to select the beginning point and clicking again where you want the line or arrow to end. Double click at the last end point of your lines or end point of your arrow to confirm the drawing. A red rectangle will appear around the lines or arrow.



The space between the detection lines has to be minimum 40 cm (0.125 feet) and maximum 70 cm (0.2 feet) and is measured on shoulder height.

- Enter **People width (m)** in the Parameters pallet. This parameter is used to calculate how many persons are crossing a line at the same time. In normal circumstances this is +/-50 cm (1.6 feet).



This parameter is measured in meters.

- Enter **Camera height (m)**. This is the height between the floor and the lens of the camera.



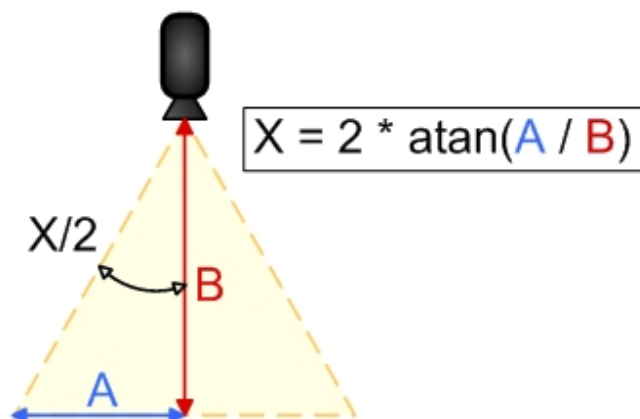
The minimum height is 2.50 meters (8.2 feet). This parameter is measured in meters

- Enter the **Camera angle with V Axis (degree)** in the Parameters pallet. As stated in the requirements, this should be 0°.



The vertical deviation angle may go up to 30° but can influence the counting accuracy. The vertical angle is the angle measured in the flow direction of the moving persons.

- Enter **Camera field of view (degree)** in the Parameters pallet. You can find your horizontal viewing angle in the specification of your camera or lens. If you don't find the angle in the specification, calculate it as following ($x = \text{field of view (degree)}$).

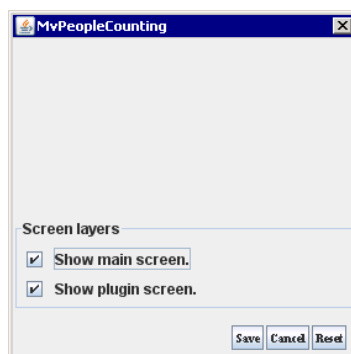


The rest of the parameters below don't have to be configured for normal conditions and only in non-standard environments:

- **People lifespan:** This parameter is used to configure how fast people are entering after each other. By default this is 0.5 seconds. In crowded environments this can be lowered (minimum = 0.3 seconds)
- **Use shadow removal:** Visible shadows may deteriorate counting results. This parameter reduces the shadow effect. It is enabled by default.
- **Sensibility:** Value between 0 and 1, default value 0,5. This parameter can be increased for low contrast images or decreased for high contrast images.
- **Min Shadow threshold:** Don't change this parameter unless requested by your installer or support.
- **Max Shadow threshold:** Don't change this parameter unless requested by your installer or support.
- **Distortion Coef K1:** Don't change this parameter.
- **Distortion Coef K2:** Don't change this parameter.
- **Distortion Coef P1:** Don't change this parameter.
- **Distortion Coef P2:** Don't change this parameter.

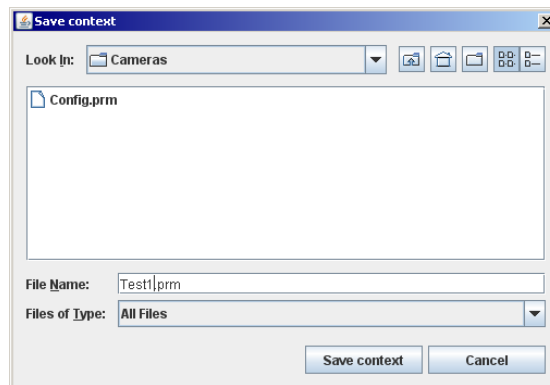
To finish the configuration, execute the following steps:

- Click , check **Show main screen** and click **Save**.



Save Configuration Screen

- Enter a **name** (or keep the proposed camera identifier) for your context (setting), select your desired save **location** and click **Save context**.



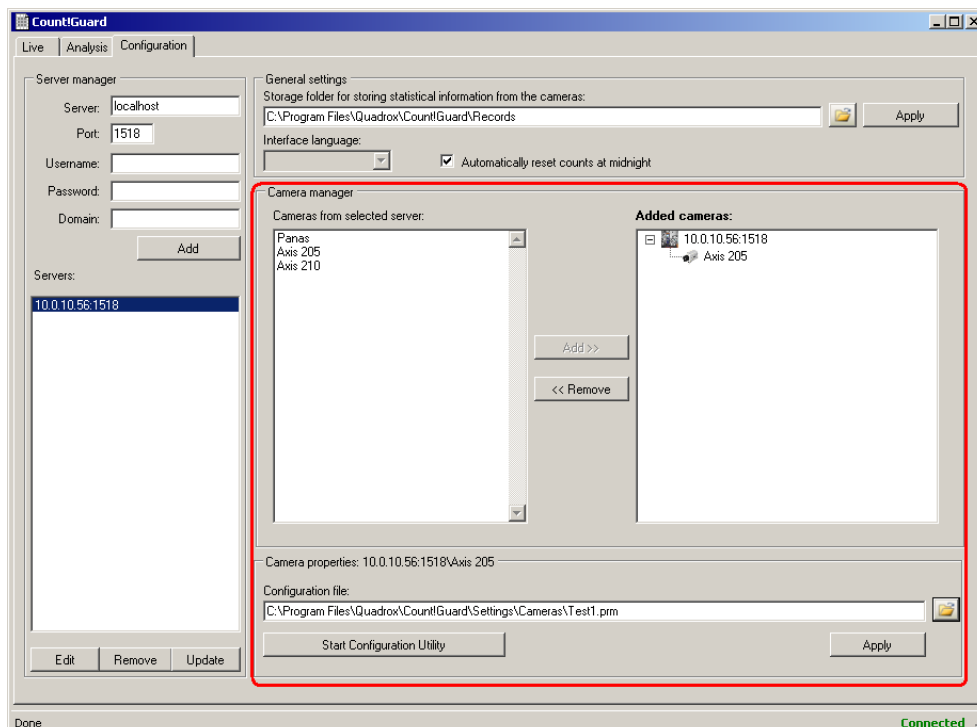
Save Configuration Context Screen

By default, the folder for the configuration files is:

- Windows XP Pro:
C:\Documents and Settings\All Users\Application Data\Quadrox\Count!Guard\Cameras\{GUID}.prm
- Windows Vista:
C:\ProgramData\Quadrox\Count!Guard\Cameras\{GUID}.prm



- Close all opened windows except the Count!Guard application. You will have the following window opened.

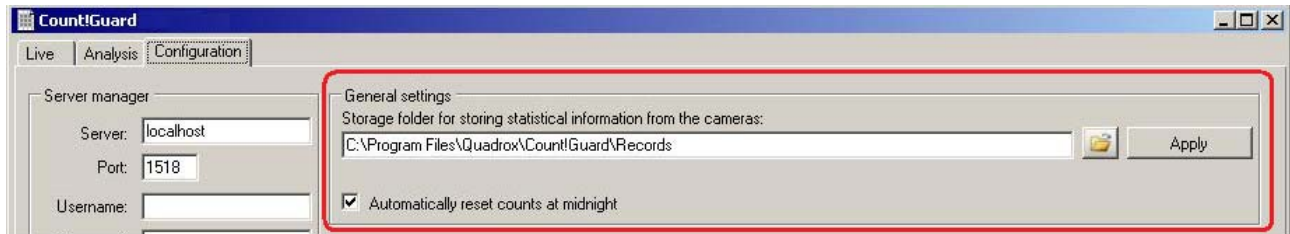


- Select the context you have just saved by browsing your computer and click **Apply**.

The camera configuration is finished.

4.1.3 Recordings

When your server and cameras are configured, the Count!Guard application will start counting and all data will be recorded. The Records path is configured in the **General Settings** section of the **Configuration** tab.



General Settings Screen

Following parameters are available for recordings:

- **Storage folder:** In this folder all counting data is stored for all servers and cameras.



By default, this folder is C:\Program Files\Quadrox\Count!Guard\Records.

- **Automatically reset counts at midnight:** If checked, the visualized counting on the Live tab will be reset to zero at midnight.



Your data is not lost when this parameter is applied. All data is stored and can be retrieved by the export feature (See **3.3.2.2. Export**)

4.2 Using Count!Guard

4.2.1 Live

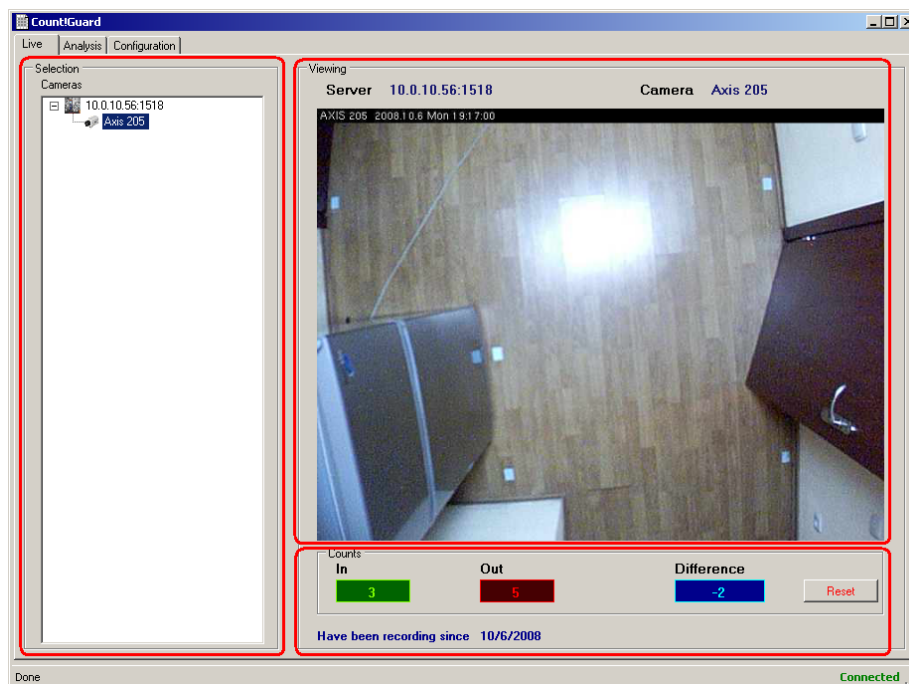
To open the local application, click the Count!Guard Local Application icon on your desktop and click **Live** tab.

The Live screen consists of the following parameters/fields:

- **Selection Cameras** – Choice which of connected cameras to be visualized in the view window.
- **View window** – Visualizes the real time image/stream of the selected camera. In addition you get information about the name of the camera and the server where the camera is connected to.
- **Counts** – The counts sections gives an overview of the following parameters:
 - **IN**: Amount of counted objects entering the site.
 - **OUT**: Amount of counted object leaving the site.
 - **DIFFERENCE**: Difference between IN and OUT.
 - **RESET**: This button resets the IN/OUT numbers to zero in order to restart your 'live' counting



Your data is not lost when this parameter is applied. All data is stored and can be retrieved by the export feature (See **4.2.2.3. Export**)

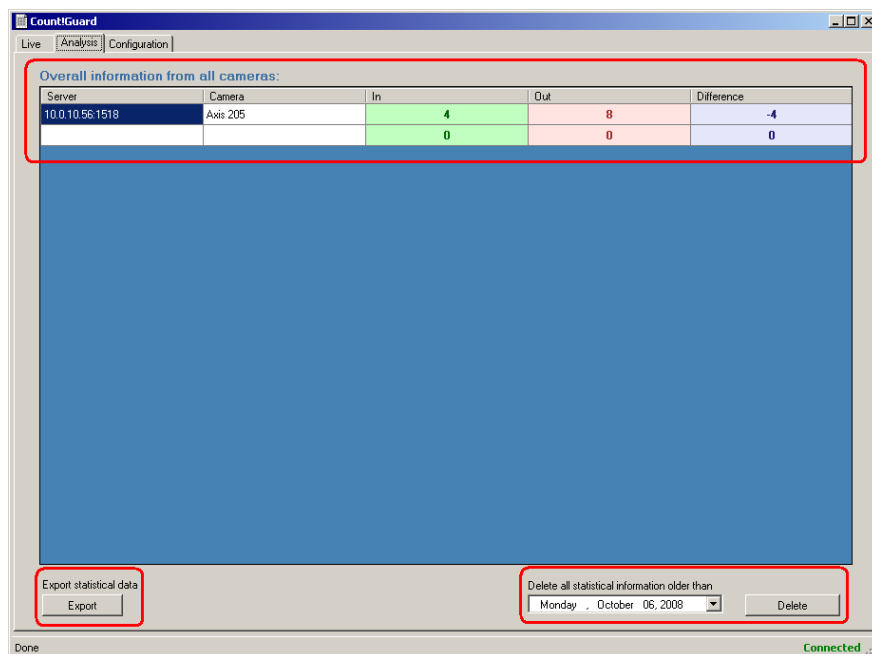


Live Screen

4.2.2 Analysis

The analysis tab allows the user to retrieve present or historical information about counts. There are three sections:

- Overall information from all cameras.
- Delete statistical information.
- Export statistical data.



Analysis Screen

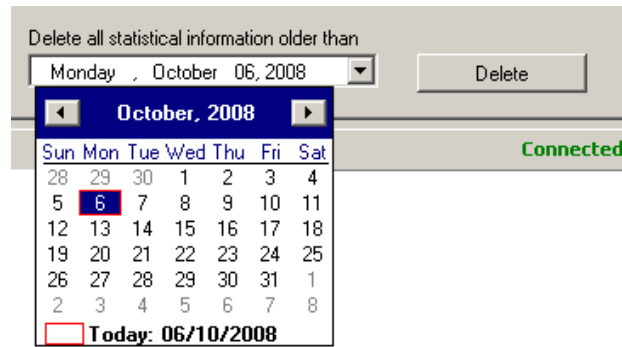
4.2.2.1 Overall information

This section gives an overview the cameras that are configured in the Count!Guard application and gives the IN/OUT DIFFERENCE total for each camera for the present day.

4.2.2.2 Delete statistical information

This section allows the user to delete specific statistical information from the past:

- Click on the list box and **select a day**. All data older than this date will be deleted.



Selection Delete Data Screen

- Click **Delete**.

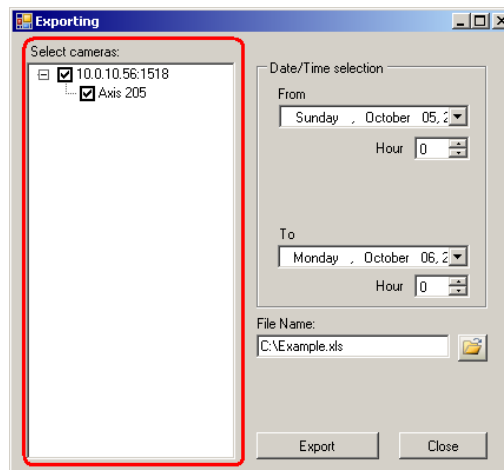
4.2.2.3 Export

The Count!Guard application allows the user to export data to files with .xls extension. Exported data will be saved on your computer and represented by graphs, pivot tables and raw data when opened in Microsoft Office Excel (2003 SP3 / 2007) or another program that is able to open .xls files (e.g. Open Office).

4.2.2.3.1 Creating

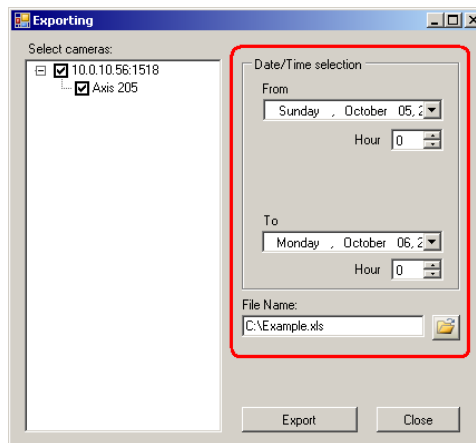
In order to create an export, execute the following steps on the **Analysis** tab:

- Click **Export**.
- Select the camera(s) of which you want to export data.



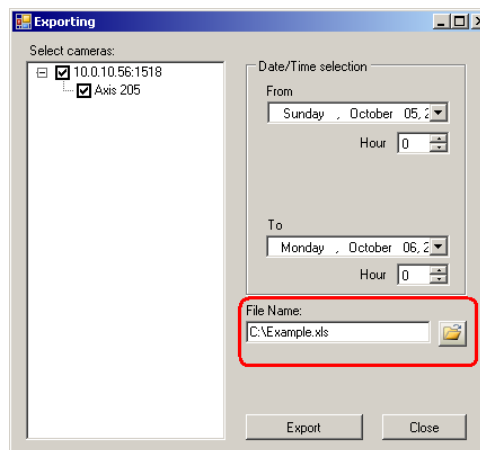
Export Select Cameras Screen

- Select the period for which you want to create an export.



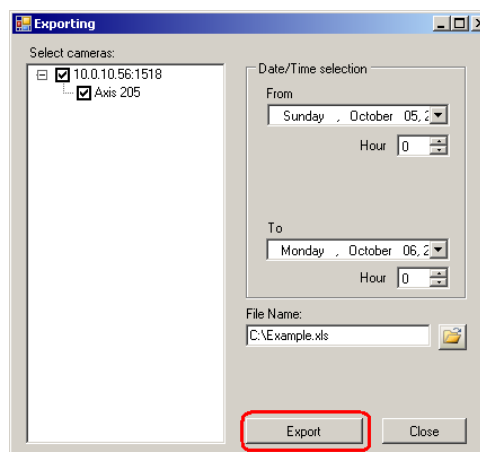
Export Select Time Period Screen

- Select the location and file (or enter new file name).



Export File Name Screen

- Click **Export**.



Export Finish Screen

Your data will now be exported to the Excel sheet in the directory you selected. If you want to exit the Exporting screen, click **Close**.

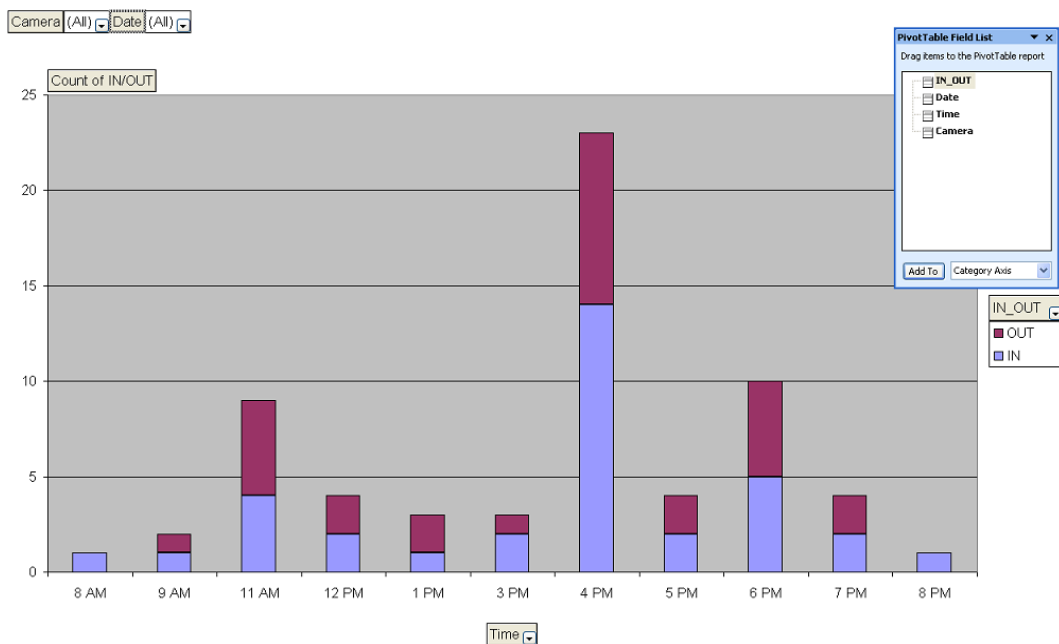
4.2.2.3.2 Export Example

An exported file can be opened in Microsoft Office Excel (2003 SP3 / 2007) or another program that is able to open .xls files (e.g. Open Office) and consists of:

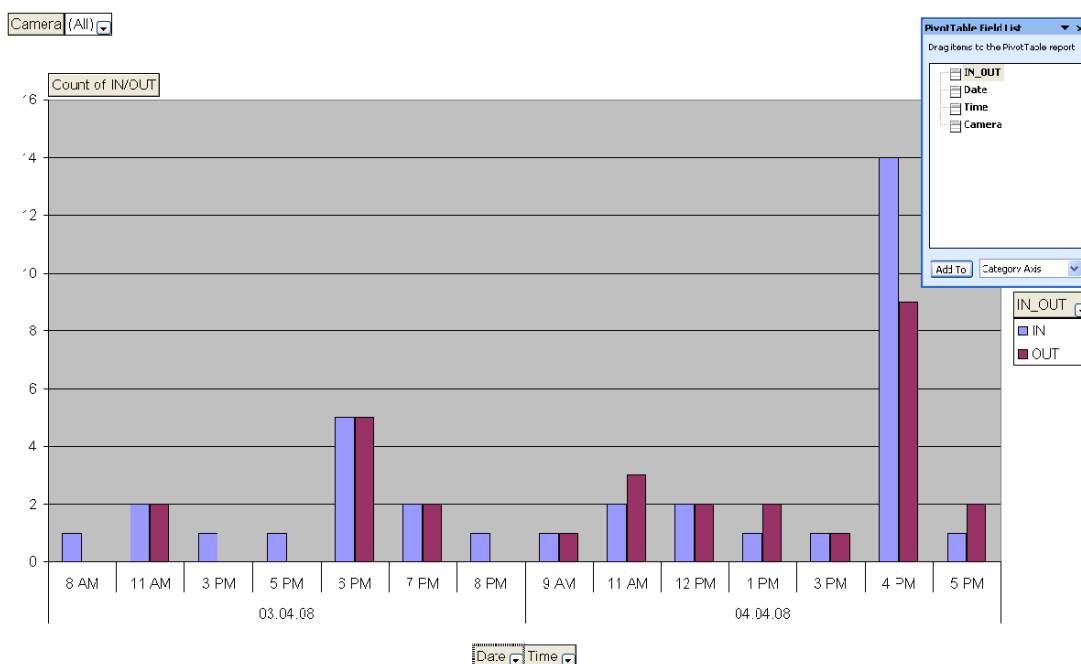
- Raw data
- Customizable graphs (based on Pivot Tables).

By default the following sheets will be present in an exported file:

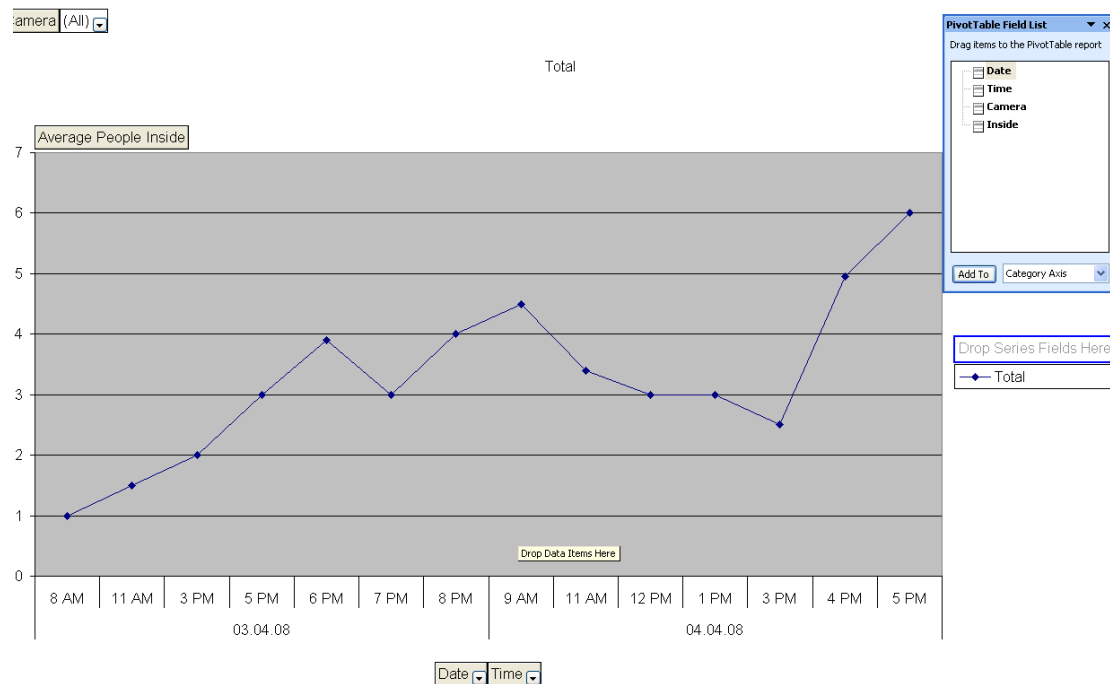
- **Timeline Chart:**



- **Counts per hour Chart:**



- **People in shop Chart:**



- **Raw Data:** You can use the raw data to create graphs, pivot tables or other actions yourself.

| | A | B | C | D | E |
|----|--------|----------|----------|----------|--------|
| 1 | IN_OUT | Date | Time | Camera | Inside |
| 2 | IN | 03.04.08 | 08:29:18 | Camera 2 | 1 |
| 3 | IN | 03.04.08 | 11:05:37 | Camera 2 | 2 |
| 4 | OUT | 03.04.08 | 11:06:38 | Camera 2 | 1 |
| 5 | IN | 03.04.08 | 11:07:41 | Camera 2 | 2 |
| 6 | OUT | 03.04.08 | 11:07:45 | Camera 2 | 1 |
| 7 | IN | 03.04.08 | 15:50:48 | Camera 2 | 2 |
| 8 | IN | 03.04.08 | 17:57:05 | Camera 2 | 3 |
| 9 | IN | 03.04.08 | 18:02:45 | Camera 2 | 4 |
| 10 | IN | 03.04.08 | 18:03:21 | Camera 2 | 5 |
| 11 | OUT | 03.04.08 | 18:04:26 | Camera 2 | 4 |
| 12 | IN | 03.04.08 | 18:06:24 | Camera 2 | 5 |
| 13 | OUT | 03.04.08 | 18:07:14 | Camera 2 | 4 |
| 14 | OUT | 03.04.08 | 18:07:16 | Camera 2 | 3 |
| 15 | IN | 03.04.08 | 18:07:26 | Camera 2 | 4 |
| 16 | OUT | 03.04.08 | 18:10:20 | Camera 2 | 3 |
| 17 | IN | 03.04.08 | 18:15:37 | Camera 2 | 4 |
| 18 | OUT | 03.04.08 | 18:55:11 | Camera 2 | 3 |
| 19 | IN | 03.04.08 | 19:17:01 | Camera 2 | 4 |
| 20 | OUT | 03.04.08 | 19:17:06 | Camera 2 | 3 |
| 21 | OUT | 03.04.08 | 19:17:25 | Camera 2 | 2 |
| 22 | IN | 03.04.08 | 19:17:31 | Camera 2 | 3 |
| 23 | IN | 03.04.08 | 20:06:41 | Camera 2 | 4 |
| 24 | IN | 04.04.08 | 09:51:27 | Camera 2 | 5 |
| 25 | OUT | 04.04.08 | 09:51:35 | Camera 2 | 4 |
| 26 | IN | 04.04.08 | 11:39:37 | Camera 2 | 5 |
| 27 | OUT | 04.04.08 | 11:40:03 | Camera 2 | 4 |
| 28 | OUT | 04.04.08 | 11:43:20 | Camera 2 | 3 |
| 29 | OUT | 04.04.08 | 11:51:46 | Camera 2 | 2 |
| 30 | IN | 04.04.08 | 11:51:55 | Camera 2 | 3 |
| 31 | OUT | 04.04.08 | 12:34:12 | Camera 2 | 2 |
| 32 | IN | 04.04.08 | 12:34:17 | Camera 2 | 3 |
| 33 | IN | 04.04.08 | 12:54:57 | Camera 2 | 4 |
| 34 | OUT | 04.04.08 | 12:55:23 | Camera 2 | 3 |

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